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An evaluation of cyanobacteria as a repellent against the turnip fly (Delia floralis Fallén)

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Abstract

The turnip root fly (*Delia floralis*) lives in the northern hemisphere and is a major pest on *Brassica* crops. *D. floralis* can cause severe economical and production damage to *Brassica* crops if left uncontrolled. The main objective of this thesis was to test if pellets with cyanobacteria have a repellent effect on *D. floralis* and comparing its effect to another product with known effect, garlic granules (Ecospray Ltd, UK). If by chance the pellets themselves have an effect, they were added as a treatment. Field trials were performed in Ås, Norway to investigate whether cyanobacteria or garlic have a repellent effect on *D. floralis.* None of the treatments reduced the number of eggs *D. floralis* laid. Wind tunnel trials were performed at NIBIO, Ås, to see if the treatments had repellent effect in a more controlled environment. Adult females of *D. floralis* had 10 minutes in the wind tunnel, exposed to the same materials as in the field. No significant differences were found between treatments in the wind tunnel. GC-EAD trials were performed at NIBIO to see if the treatments induced any response on the antennae of *D. floralis*. Headspace was collected from; cyanobacteria, garlic, pellets with cyanobacteria and pellets without cyanobacteria. Samples were scanned with GCMS as to show which volatiles were present. For every trial, a new antenna was taken from *D. floralis* females > 7 days of age. There were no repeated antennal responses to volatiles from; pure cyanobacteria, pellets with cyanobacteria or pellets without. 3 different antennae showed responses to the same volatiles of garlic; Allyl disulfide, Allyl trisulfide, 3-vinyl-1,2-dithiacyclohex-4-ene and Undecyl acetate (ISTD). The GCMS results from the samples show, that in the process of making pellets with cyanobacteria some volatiles disappear. We can conclude from all the results that pellets with cyanobacteria have no repellent effect on *D. floralis* females.

Sammendrag

Den store kålflue (Delia floralis) lever på den nordlige halvkule og er et stort skadedyr på *Brassica* avlinger. Den sørge for store økonomiske og produksjons skade på *Brassica* avlinger hvis den ikke blir kontrollert. Formålet med denne oppgaven var å teste om pellets med cyanobakterier har en avstøtende effekt på *D. floralis* hunner og sammenligne resultatet med et annet produkt som har kjent effekt, hvitløksgranulat (Ecospray Ltd, UK). Dersom pellets i seg selv tilfeldigvis har en effekt så er de inkludert som en behandling. Feltforsøk ble utført i Ås, Norge for å undersøke om cyanobakterier eller hvitløk har en avstøtende effekt på *D. floralis.* Ingen av behandlingene ga redusert antall egg lagt av *D. floralis*. Vindtunnelforsøk ble utført på NIBIO, Ås, for å se om behandlingene hadde avstøtende effekt i et mer kontrollert miljø. Voksne hunner av *D. floralis* fikk 10 minutter i vindtunnelen, utsatt for de samme materialene som i felt. Ingen signifikante forskjeller ble funnet mellom behandlinger i vindtunnelen. GC-EAD forsøk ble utført ved NIBIO for å se om behandlingene induserte en respons på antennene til *D. floralis.* Luktoppsamling ble gjort av; cyanobakterier, hvitløk, pellets med cyanobakterier og pellets uten. Prøvene ble skannet med GCMS for å vise hvilken flyktige stoffer som var tilstede. For hvert GC-EAD forsøk ble en ny antenne tatt fra voksne *D. floralis* hunner > 7 dager gammel. Ingen antenner hadde gjentatte responser på flyktige stoffene fra; ren cyanobakterier, pellets med cyanobakterier eller pellets uten cyanobakterier. Tre forskjellige antenner viste respons på de samme flyktige stoffer i hvitløk; Allyl-disulfid, Allyl-trisulfid, 3-vinyl-1,2-dithiacyclohex-4-ene og undecyl acetat (ISTD). GCMS resultatene fra prøvene viste at prosessen som lager pellets med cyanobakterier fjerner noen flyktige stoffer. Vi kan konkludere ut ifra alle resultatene at pellets med cyanobakterier ikke har en avstøtende effekt på *D. floralis* hunner.

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Ås

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Contents

Introduction

The turnip fly, *Delia floralis* (Fallén) lives in the northern hemisphere and is a pest on *Brassica* crops. Larvae of *D. floralis* feed on the roots of plants, but they can also attack the stem and other edible parts, such as the flowers heads in cauliflower (Meadow, 2013). In severe cases of infestation, they can feed through the root, severing the root from the plant which either will weaken or kill it. In crops where we use the roots as food, damage to these parts can result in economic losses as they are then unable to be sold.

In the mid 1930's several synthetic chemicals were discovered that could be used as insecticides; organochlorines, organophosphates, carbamates and pyrethroids. Their effectiveness in controlling insects pushed their more natural counterpart down from their important role in agriculture into a more insignificant position. However, several unanticipated problems arose because the insecticides were used extensively in the span of few years. Water supplies were contaminated, fish were poisoned, birds and wildlife died, even the farm workers got sick (Council, 2000; Forget, Goodman, & De Villiers, 1993; Isman & Murray, 2006)

These problems resulted in the banning of several insecticides while firmly restricting others. The Environmental Protection Agency (EPA) created policies in the early 90's in the USA, and together with the Food Quality Protection Act from 1996 they removed the synthetic insecticides which were developed before the 80's. Because of this, a motivation arose to discover and develop alternative pest management that were more environmental friendly and had less health impact. The literature and research for plant secondary metabolites which can be used in agriculture has grown a lot in the last 35 years (Isman & Murray, 2006; Prakash & Rao, 1996).

In Norway, the policies around insecticides are strict, resulting in insecticides banned that are still used in other EU countries, especially those used in controlling *Delia radicum and D. floralis*. In the 1980's there were quite a few chemical insecticides available to control *D. radicum* and *D. floralis*. For example, granules such as Birlane (Chlorfenvinphos 10%) and Oftanol (Isofenphos 7.5%), and powder to spray or emulsion such as Gusathion (Azinphosmethyl 25%), Basudin (Diazinon 23%) and Agritox emulsion (Fenvalerat, Cumicidin 20% and Trichloronat 50%) (Rygg & Kjøs, 1982). Oftanol was removed in 1998 ("Plantevernguiden Oftanol Beis,") and Birlane, Gusathion and Basudin in 2006 (NIBIO, 2017). Treating the seeds of *Brassica* vegetables with Mundial (Fipronil) is still allowed to this date, January 2017.

Because these chemical insecticides disappeared, other ways to protect the crops had to be found. From 2005 to 2007 a research project (Kålfluebekjempelse I kålrot, Norges Gartnerforbund) was organized to look at the effects of ECOguard garlic extract and Conserve (Spinosad, a bacteria *Saccharoplysora* *spinose*). They both had good effects (Meadow & Folkedal, 2008). ECOguard was allowed as of 21-12-2007(NIBIO, 2017) to be used in the field. Conserve is originally allowed in ornamental plants, tomato, herbs, strawberries in pots, salad and cucumber. It became available for off-label use on 08.05.2012, which means that you can use it in a new application area where it originally was not allowed, if you get approval from Mattilsynet (Mattilsynet, 2017; Norgesfôr & Bovim, 2017). In 2008 (NIBIO, 2017) another pest management method came on the market called Fence. Fence is a physical barrier impregnated with Deltamethrin which kills the flies, and is set up around the fields to keep them out. Since there are so few methods available for controlling *D. floralis* there's a continuous hunt for new treatments.

Pesticides and IPM – Delia floralis

Pest management for *D. floralis* is difficult in Norway because almost all the available chemicals need approval from Mattilsynet before use. This is one of the reasons why it is important to look for new and more natural ways to control *D. floralis*. Most natural ways of managing pests are less dangerous for the environment and our health. Another reason the search for more natural ways of managing pests is important, is because insects are also developing resistance towards pesticides which have been excessively used, or used over many years (Shaaya, Kostjukovski, Eilberg, & Sukprakarn, 1997).

Integrated Pest Management (IPM) is a strategy for controlling pests, and can be defined as: A process based on multiple tactics coordinated to optimize the control of all classes of pests in an ecological and economically sound manner (Ehler, 2006). When IPM is integrated, human and environmental health should be protected, increasing the economic gain for the farmer and reduce the use of pesticides for pest control (Ehler, 2006).

"Push Pull" is an IPM strategy which utilizes our knowledge of the insects we try to control. We use species that repel pests (Push) and we try to attract (Pull) species that are beneficial for controlling the pest. In a push pull system in Africa, against stemborers in maize, there has been reports of significant increases in yield and additional benefits in soil fertility, fodder and milk production (Khan, Midega, Bruce, Hooper, & Pickett, 2010). Salicylaldehyde is a volatile with repellent effect on *D. radicum*. In of the 66% of the plants in a field with 50 dispensers per 100 plants showed no root damage and up to 85% plants had no damage on the green parts, compared to 20 and 30% in non-treated fields. But it is rather costly because a large number of dispensers is required in a field (Ouden, Alkema, Klijnstra, Theunissen, & Vlieger, 1997).

Intercropping (adding clover) in a cabbage field has shown to have good results. Björkman (2007) cites that it can reduce oviposition by 40-50%. The use of Fence also has good effects, but Fence works best when the terrain is flat, and no tall vegetation is near, so the flies cannot pass over the Fence (Meadow, 2004; Meadow, Johansen, Seljåsen, & Haukeland, 2008b).

Most growers in Norway use insect netting (Folkedal, Personal communication, January 24th, 2017). The netting is specifically designed for plants and have different mesh sizes for different insect species. Another method that can prove effective if used correctly is crop rotation. For this to be effective you need a physical barrier; a forest and a large distance between fields because *D. floralis* females are active flyers and can fly a distance up to 2km (Meadow, 2013). You also need at least 1 year without any cultivated *Brassica* species. Using a combination of these methods can drastically improve the number of sellable crops. Insect netting and Fence should be used with caution since they are quite fragile and expensive.

Cyanobacteria and their use

Cyanobacteria are cosmopolitan prokaryotes which are Gram-negative and have been on the earth for over 2 billion years (Rastogi & Sinha, 2009). They can live under almost any living conditions; Fresh water, salt water, rich soil, bare rocks, deserts, ice and even in the hot springs of the Antarctica. They also live as endosymbionts in plants and lichen. There is a huge variety of forms they can be found in; unicellular, multicellular, filamentous, autotrophic, heterotrophic, psychrophilic to thermophilic and even colonial. For their survival in all of these different habitats, they have developed an interesting array of secondary metabolites, each of these secondary metabolites has a function that allows them to compete and survive (Rastogi & Sinha, 2009; Thajuddin & Subramanian, 2010). Many of these secondary metabolites are used by humans for different purposes, some like scytonemin and mycosporine-like amino acids play a role in screening for ultraviolet radiation (Sinha, Klisch, Gröniger, & Häder, 1998).

Cyanobacteria that are biochemically active, producing toxic or odorous metabolites have been studied, especially those within marine and freshwater systems (Rastogi & Sinha, 2009). The toxins from cyanobacteria can have allelochemical roles, be applied as herbicides, insecticides, fungicides and algaecides. A cyanobacterial peptide toxin from *Scytonema* MKU 106 has been used against cotton pests (*Heliothis armigera* and *Helicoverpa armigera)*. The toxin showed to have a >50% mortality rate on the larvae (Sathiyamoorthy & Shanmugasundaram, 1996). Cyanobacteria can also be utilized as biofilm against phytopathogenic fungi (Prasanna *et al.*, 2008). Coating the plant with toxins extracted from cyanobacteria can affect a variety of insect species, among those *Plutella xylostella*. The main issue is that these toxins are dangerous to mammals as well (Delaney & Wilkins, 1995).

Allelochemicals such as microcystin, lyngbyatoxin A and cyanobacterin can play a vital role in defense against predators and grazers (Berry, Gantar, Perez, Berry, & Noriega, 2008; Gleason & Case, 1986). The toxic secondary metabolites from cyanobacteria can be put into five groups; hepatotoxins, neurotoxins, cytotoxins, dermatotoxins and toxins that irritate (Wiegand & Pflugmacher, 2005). Toxic secondary metabolites from cyanobacteria are well studied and have shown they are capable of being lethal to livestock (Berry *et al.*, 2008).

Biology of Delia floralis

Life cycle

Developing new ways to control *D. floralis* requires knowledge about its biology and behavior. *D floralis* is a pest with a wide host range, a specialized pest on *Brassicaceae,* a family with economic importance to humans. Adults of *D. floralis* are between 6-9 mm, are colored gray and have 3 darker stripes on their backs (Fagertun, Hofsvang, Meadow, & Taksdal, 2003; Meadow, Brandsæter, Birkenes, & Hermansen, 2008a). Females keep to field margins until one week old and ready to lay eggs. Then they move into the field at early afternoon for oviposition. Eggs are laid in large batches typically around the base of the plant (Meadow *et al.*, 2008a). The eggs are white, around 1mm in length, with an elongated form and a concave on one side. They hatch after around one week (Capinera, 2008). Larvae are white, headless and without legs. Larvae go through 3 instar phases and their larval stage is 4-5 weeks (Meadow, 2013). The pupae are brown, 6.5-7.5mm and overwinter in the soil (Capinera, 2008). Knowing where the pest overwinters can make the IPM management easier because you can avoid that field or treat it (Meadow *et al.*, 2008a). Pupae of *D. floralis* hatch at different times in Norway; in the northern regions around end of June, and one month later on the west coast, whilst the southern-regions have local times (Meadow, 2013), Ås had eggs in the start of June (Personal observation).

Behavior

D. floralis and the closely related *D. radicum* are major pests on cultivated *Brassica* vegetables. The larvae eat the root system of their host, which in large number of attacks can lead to decreased growth, or even death of the host (Björkman, 2007; Gouinguene & Städler, 2006). There are small differences between these species; The sensitivity of the sensilla present in the tarsae of *D. radicum* and *D. floralis* are not equal. The C_5 sensillum of *D. radicum* does not respond to sucrose, whilst the C_5 sensillum of *D.*

floralis had a response. And in *D. radicum* $D_{3,4}$ and C_5 sensilla are sensitive to glucobrassicin and possibly other glucosinolates, however for *D. floralis* there was no response (Gouinguene & Städler, 2006). *D. floralis* on the other hand used the A sensilla on the prothoracic and D sensilla on the mesothoracic tarsi instead and five sensilla located on the labellum (Simmonds, Blaney, Mithen, Birch, & Lewis, 1994).

Selection of host plant and accepting/rejecting oviposition site was studied by Havukkala and Virtanen (1985). The sequence for this was divided into six steps:

1. Landing
2. Extension of proboscis and examination
3. Walking over the leaf
4. Running down the stem
5. Walking on the ground at the base of the stem
6. Oviposition

Havukkala and Virtanen (1985) concluded that during the stem run, in 42% of the cases the host plant was rejected. Hopkins, Wright, McKinlay, and Birch (1996) rejected this because: When the actual numbers of individuals are low, proportions can be artificially high when looking at the percentage of females rejecting within any one area of the plant. Hopkins *et al.* (1996) suggests that the cues received when the fly lands are important for selection of oviposition site. This is similar with *D. radicum* where chemoreception plays an important role for plant recognition (Zohren, 1968).

Before *D. floralis* gets to the host (*Brassicaceae)*, it employs a series of short flights. Every time it lands it will re-align itself towards the wind, searching for volatile host plant compounds that will point it in the right direction (Björkman, Hambäck, & Rämert, 2007; Havukkala, 1987). Havukkala (1987) observed that *D. floralis* females used visual stimuli to locate the green traps at closer ranges. Björkman (2007) observed that plants that were grown on fields without intercropping were more attractive than those with intercropping. Most likely because they were easier to identify. Flies are known to use volatile chemical stimuli combined with visual cues when they their find hosts (Aak, Knudsen, & Soleng, 2010; Finch & Collier, 2000).

Glucosinolates are compounds that are typically found in *Brassicaceae*, they are highly attractive volatiles for *D. floralis* and they induce the oviposition behavior (Björkman *et al.*, 2011). Isothiocynates are the products of degradation of glucosinolates, and are used to locate the host plant through gustatory receptors (Al-Anzi, Tracey, & Benzer, 2006; Gouinguene & Städler, 2006). Cabbage Identification Factors (CIF) are compounds that are found in *Brassicaceae*, mainly on the leaf surface in rather low concentrations. CIF compounds incite a higher oviposition behavior (Gouinguene & Städler, 2006). Although oviposition is not certainly based on leaf-surface results only, Björkman *et al.* (2007) concludes that changes made by larval feeding are not detected in the leaf surface, which can be an indication that volatiles or contact at ground level is also important for oviposition decision making.

Hypotheses & Objectives

Main objective:

The main objective of this study is to see if Pellets with cyanobacteria have a repellent effect on *D. floralis.*

Minor objectives:

- To ensure the pellets made from bioenergy waste play no significant role in the repellency, they were included as a treatment.
- To see if Pellets with cyanobacteria have any effect on *D. floralis*

H0 = The pellets with cyanobacteria have no effect on *D. floralis*.

H1 = The pellets with cyanobacteria have a repellent effect on *D. floralis*.

Material and methods

Rearing process D. floralis

The flies were reared in a climate-controlled room with light at 03:00 AM and night from 19:00 (16h:8h L: D). The temperature and humidity were set at 18°C and 60% respectively. The insects were reared in Bugdorm cages (32.5 x 32.5, Bugdorm). The adult food and water was changed once a week, the food was 1-part sugar (glucose), 2 parts dextrose, 2 parts yeast and ~1.5 parts water. The yeast and dextrose were from Brewer's yeast (Arwex AS, Oslo), 200 g with 50 g sugar and 110 g water. The food was spread on a plastic lid and sprinkled with more Brewer's yeast to prevent the flies from sticking to the food. Water was provided through 100ml cups with a hole in the lid, and a dental wick (Roeko "Parotisroll" 10cm long 1cm diameter) protruding to allow the flies to feed with their proboscus.

For oviposition, cages with flies older than a week were used. The oviposition site consisted of a piece of swede (about 30 g) placed on sand in a petri dish, the sand (Baskarp sand, Sibelco Nordic AB Type B55) was moistened by adding water. Excess water was poured out. The oviposition sites were left in the cage for roughly one week before removal.

Larval development was done in pots where a mesh covered the bottom so that the sand did not run out of the pot. Sand (Baskarp sand, Sibelco Nordic AB Type B55) was then used to fill the pot to approximately 4cm from the rim. Water was poured on the pot until the sand was wet. A swede with the base cut off was then pushed a few mm into the sand. The swede was then removed and the petri dishes with the eggs were emptied into a breaker, water was added so the eggs could float to the surface. The water and sand was stirred so more eggs could float to the surface. Avoiding eggs getting too deep in the sand, the water/egg mix was poured carefully on the sand. Eggs were spread evenly over the dent off the swede. The swede was put back on its dent once done pouring eggs. Extra swedes parts were added if there are too many larvae in the swede, this showed after 2-3 weeks. The pot was then placed on a petri dish; to avoid fluids all over the place, a marker with date was put in the sand, roughly 5 weeks after this date the pupae were washed out.

Pupae washing was done after 5-6 weeks with larval development. The swede was removed and the sand was put in a large box and mixed with water. The pupae raised to the surface of the water, and the water was stirred to release pupae stuck under the sand. The water was poured through a sieve to separate pupae and water, until no more pupae were visible in the large box. 300ml plastic boxes were filled to ~4 cm from the rim with slightly moist sand. The pupae were divided on top of the sand amongst several boxes; depending on the amount. Sand was filled to the rim of the boxes on top of the pupae. These boxes were then put into clean cages with fresh water and food.

Infection of D. floralis culture and procedures

On 25/10/2016 an insect pathogenic fungus was discovered in the *P. Xylostella* culture, which shares the room with *D. floralis*. Thus the *D. floralis* culture had to be checked and cleaned. Three days later, the laboratory room where all the preparations were done was cleaned, and the *D. floralis* culture was moved in there. The pupae that were ready to hatch in the cage inside the climate-controlled culture room were taken out in plastic bags which were sprayed with >70% alcohol. Preparations were done in the room beforehand for pupae surface sterilization. The process used was as following; The pupae were placed in 70% alcohol for a few seconds to facilitate wetting the specimen

1) Briefly rinsed with distilled water
2) Pupae were then placed in diluted sodium hypochlorite (NaClO) for 1 minute (bleach was used, it was diluted to 1% NaClO).
3) Pupae were rinsed 3-5 times with sterile water (Water was autoclaved beforehand)
4) Then blotted dry with sterile filter paper

After this the pupae were placed in newly washed and cleaned cages. Water and food supplied. These were the start of the new *D. floralis* culture that was used in the GC-EAD trials.

Plant culture at NIBIO

In a climate-controlled room, Chinese cabbages (*Brassica rapa)* were grown (Bilko F1 organic variety), 14:10 h L: D, 20°C, 70% RH. The seeds were put into a sowing tray with Go' jord growing soil (Degernes torvstrøfabrikk A/S, Degernes, NO). Watered once a week, checked twice a week to be sure they were not dried out. Liquid fertilizer, a mix of; Yara Kristalon (9-11-30-7Mg0 + Micro) and Yara Superba brun was given once a week. After 2-3 weeks, they were put into bigger pots (11cm) and after 5-7 weeks they were ready to be used.

Material – Pellets and ECOguard granules garlic

ECOguard garlic granules are made by Ecospray Ltd, UK. And is a formulation of 45% polysulfide actives. The polysulfide is responsible for killing cabbage root fly, other dipteran eggs and first instar larvae. It should be applied around the base of the *Brassica* plant. It has been tested and shown to have no repellent effect but toxic effect instead on the pest (Meadow & Folkedal, 2008).

Pellets with cyanobacteria and without cyanobacteria are both made by Bioskiva A/S, Norway and has the project name “Fertibug”. The pellets are made from the fibrous remains of Biogas production, and in the case of pellets with cyanobacteria they are coated with a repellent agent from blue-green algae. In Hungary and Spain they have shown exceptional results, up to 100% repellent effect on cabbage root flies and increasing crop yield by 80% because they are also fertilizers (Benedek, 2011). The results from the Hungarian trials say they are 100% repellent because 0 flies were detected in the plots treated with pellets. But the untreated plots (Control) also have 0 flies, so the conclusion of these results seems unjustified.

Data collection – Field work

The specific aim of the field work was to see if pellets with cyanobacteria would have repellent effects on *D. floralis* oviposition behavior. The research fields were located on (59°40'20.5"N 10°46'14.2"E) in Ås and consisted of 12 plots, 25 plants in each, 50cm between plants and 3.5m between plots.

The field was tilled, soil treated with a pre-emergent herbicide before planting; Centium 36 CS (Clomazone), 12.5 per dekar. The soil was fertilized with a 12-4-17 (12% nitrogen, 4% phosphorus and 17% potassium) micro mixture, which is a chlorine poor fertilizer. After application, it was rotorvated into the ground. Amount of fertilizer used was 125kg/daa instead of the recommended 100kg/daa because of low fertile soil. This amounted to 500g/plot. The plants were planted with the help of a frame (Figure 1) built for this purpose (with given distances). Cauliflower *Brassica oleracea* were planted with 50cm from each other, plots were 2x2m in size and contained 25 plants.

Figure 1 The frame built and used for planting cauliflowers. Distance between wires is 50cm, at each start and crossing of wires a cauliflower was planted, and in the corners of the frame.

Figure 2 Plant used for treatment. The soil around it is removed, sand put instead and treatment material is mixed in the sand.

A total of three replications, four plots in each repetition; one treatment per plot. Treatments were; pellets with cyanobacteria, pellets without cyanobacteria, garlic and control. Figure 1 shows the layout for each plot, at each intersection of wires a cauliflower was planted (A total of 25 plants, 5x5). The middle nine plants of each plot were selected for the field work and treatment was applied to these as shown in figure 2. Outlier plants were not used, avoiding buffer zone effect.

The plots were arranged as randomized blocks (Figure 3). Based on earlier trials by the producer Bioskiva a/s, for both pellet types 3 grams per plant was used and the garlic granules was 2 grams, as is recommended by the producer Ecospray Ltd, UK. To apply the treatments, the following was done; A small amount (150-200ml of soil was removed around the plant with a spoon, carefully as not to damage the plant. Instead of soil around the plant, 100ml of fine sand (Baskarp sand type B55, Sibelco Nordic AB) was placed there, the treatment was mixed in there. Every replication was treated by the same person (same method) and every replication was finished before starting on a new one. As figure 3 shows, in the case of one control, 1 PCB and one pellets treatment the plants used were replaced with border plants because the original ones were dead or too weak to use in the study. Replanting was attempted but with little success.

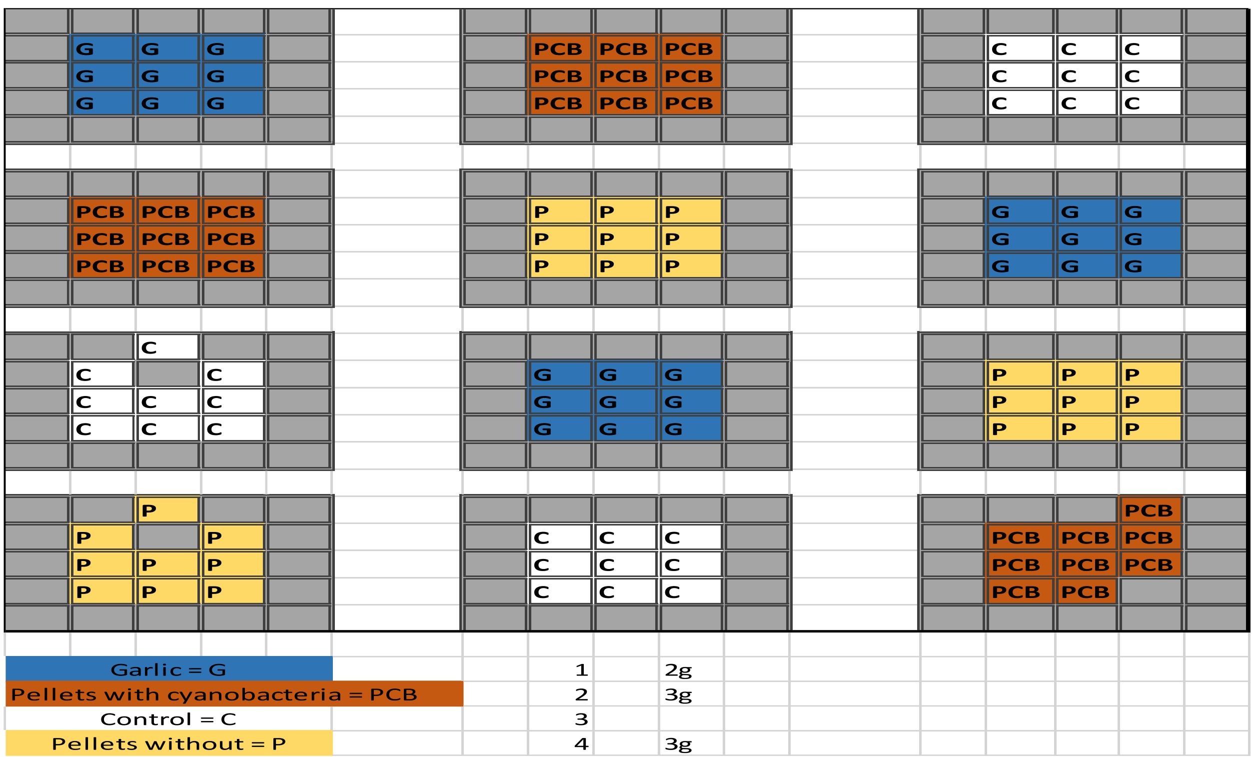

Figure 3 Randomized treatment for each repetition. In 3 cases outlier plants had to be selected because one of the middle 9 was dead or too weak to be used in the experiments. C = Control, G = Garlic, P = Pellets without and PCB = Pellets with cyanobacteria.

Once a week the sand (containing the treatment) around the plant was collected into 100ml containers with a spoon, eggs were gently collected from the stem if required. When the sand was collected from all plots, new treatments were applied. The first treatment was applied 2nd of June 2016, collected the 8th of June. New treatment was applied the same day, and then collected 16th June, applied same day and then collected 23rd June for the last time.

The same day the materials were collected, eggs were counted. Every container was marked carefully which plot it came from and eggs were pooled for the plot as a whole. Three 100ml containers with material were put into a plastic box (Figure 4), water was added and everything was then stirred so the eggs would float to the surface of the water. After stirring the water, it was allowed to settle, which made counting easier. Keeping track of numbers was done using a mechanical counter. Total numbers of eggs per plot was recorded.

Figure 4 Yellow boxes with sand material before water was added

Wind tunnel

The specific aim of the wind tunnel experiments was to see if pellets with cyanobacteria have repellent effect on adult females of *D. floralis* in a more controlled and easier observed environment than the field. The wind tunnel, located at NIBIO, Ås has a section for flight with the dimensions 67 x 88 x 200cm. It is described in detail by Aak *et al.* (2010). Developing the protocol for wind tunnel experiments with *D. floralis* was a substantial part of the work, since there is almost no literature on this, information on behavior of *D. radicum* experiments in wind tunnel was used as reference.

Female adults of *D. floralis* were 7 to 9 days old when they were used in the wind tunnel experiments (Havukkala & Virtanen, 1984; Kostal, 1993). Establishing the right settings and time for wind tunnel experiments was done in connection with previous experiments (assisting Dr. Bélen Cotes). Protocol development started at around the 20th of June 2016 and lasted roughly a month to be certain that everything was set. Many different settings were tried. The humidity ranged from 55 to 72 % RH at its highest, whilst the temperature was more stable, as low as 22°C and high as 25°C in the room housing the wind tunnel. All the flies were caught, put in glass tubes and transferred to the Wind tunnel room at least 1 hour before their use in the wind tunnel so they could adapt to the climate in the room.

To develop the wind tunnel protocol, different wind speeds were tried, seeing if the flies preferred a low or high speed. Havukkala (1987) observed that they preferred to fly up-wind, yet from personal communication (Richard Meadow) mentioned that with high wind speeds they did not like to move. We had to find the optimum between low and higher speed. Preliminary experiments with *D. radicum* (Dr. Maria Björkman) suggested that 20-30 cm/s should be sufficient. Several trials were done throughout the day with a variety of wind speeds, in the end it was decided to do our testing at 30 cm/s.

Time of the day was also crucial for doing trials. There are few publications regarding the behavior of *D. radicum* during the day; At which hours they walked, fed and laid eggs (Hawkes, 1972). It was concluded from Hawkes (1972) that after 7 hours of light they tended to start oviposition, whilst they mostly fed and mated before that. The trials have been conducted 6 to 7 hours after the light regime had started.

Mimicking natural light conditions to portray the right time of the day was harder. There was a board covered with LED's hanging above the wind tunnel, and one with "warmer" lights on the left side (Figure 5). We viewed everything from the right side since the left side was placed 5cm from the wall. Increasing and decreasing light from those directions available was tried, but the lighting from the right side came from the lights hanging from the ceiling. In the end, the following light values on the different positions (Table 1) were used.

Table 1 Amount of LUX at the different positions in the wind tunnel

Platform	340 lux
Halfway between 50-100cm	455 lux
Halfway between 100-150cm	420 lux
Plants	380 lux

Figure 5 Overview of the wind tunnel layout and a rough indication positions light values were measured from.

As suggested by preliminary tests from Maria Björkman, the time per trial was 15 minutes, but after a month with testing it was noted that very few flies had actions after 10 minutes, so the testing time was reduced to 10 minutes. In the start, trials were with 1 adult female, but it was found that they seemed little motivated to act. After some testing, it was observed that releasing 3 females together somehow stimulated them into action, and 3 flies could be easily tracked. The whole process of finding conditions that worked well for *D. floralis* took roughly a month. Problems with the *D. floralis* culture prevented the possibility to do testing every day.

Wind tunnel - Trials

Two plants from the climate-controlled room were collected for the trials and three adult females of *D.* floralis were caught in a vial and transferred to the wind tunnel room. Treatments were put in small cups (Medicine breakers, 25ml), either 2g for garlic (NEMguard DE Batch no 5995/Jan 16, produced by ECOspray ltd) or 3g for the pellets with and without cyanobacteria.

The first trial per day was control, a vial containing 3 female *D. floralis* without oviposition experience with oviposition substrate released in the wind tunnel. A stopwatch was started when the vial was opened, they were given 10 minutes before they were caught again. The wind tunnel was divided into different sections; first 50cm was No response, then 50-100cm, 100-150cm, passed 150 and landing on plant. Only forward actions were noted, flies were recaptured if they moved too far back into the netting area (Figure 5). After 4 trials with control, treatment material was applied to the first plant and 4 new trials were done. When those 4 trials were done, the plant was discarded and a new one was put in its place. These trials started around the 23rd of August and ended on September 6^{th}.

The pellets with and without cyanobacteria had gotten moldy, to check that they did not influence the results. The trials were redone with fresh material received halfway in September; WT trial #1 = moldy and WT trial #2 = clean material. The trials with the clean material started September 20^{th} and lasted until 20^{th} of October.

GCMS and GC-EAD

Headspace collection

Headspace collection was done for GCMS to see which volatiles were present in the different treatments. The method was similar to what Dalen, Knudsen, Norli, and Thöming (2015) used.

All the glass equipment and aluminum foil used in headspace collection was burned before use. A porapak filter (35g, 80/100 mesh; Alltech, Deerfield, IL, USA) was washed with 6ml hexane, 6ml methanol and again 6ml hexane, and dried before use. Filters were always protected from light while not being cleaned/eluted. The airflow volume through the glass containers was 220ml/min. Samples were prepared before use. Aluminum foil was used to create small bowls to hold the sample material with. 5 headspace samples were taken from each material except control, which had 3 replicates. For the cyanobacteria, we received ~3 grams, so 0.6 gram was used for each sample. For the pellets, the same amount as the field work was used;3g for pellets and 2g for garlic. The glass containers were sealed together with a bit of water between the lids and held in place with rubber pliers. As seen on figure 6, a charcoal filter was fitted into one inlet on the glass container, originating from the air flow machine. And on the other inlet the porapak filter was fitted. The samples took ~3 hours before they were finished, after 1.5 hours the containers and airflow was checked to see if everything was still stable and good. Extra water was added to the lids if needed, rubbing it on the sides was enough for it to pull it in and reseal. When the samples were finished, they were eluted.

Eluting was done with following method; 1 ml glass pipette, 0.3ml hexane used to dilute volatiles from the filter. The droplets were caught in 2ml vials (Agilent Technologies, Santa Clara, CA, USA) containing a 250µl glass vial insert with polymer feet (Agilent Technologies). A 10µl pipette was used to add 2 µl of ISTD to the sample (500ng heptyl acetate and 500ng undecyl acetate), the sample was then crimp-capped and stored at -20℃ (The -80℃ freezers were out of order because of maintenance).

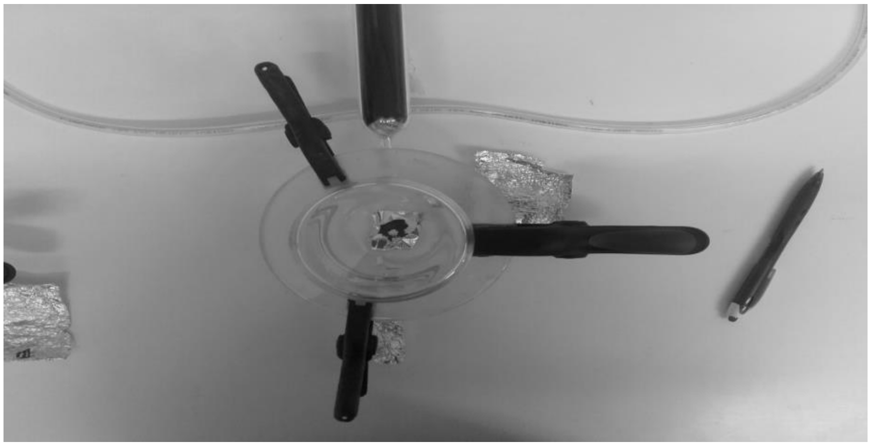

Figure 6 The glass container (2x 250ml), water between the lids to seal, held in place with rubber pliers. Charcoal filter on top and porapak filter sticking out on the bottom wrapped in aluminum foil. Aluminum foil bowl containing material inside.

GCMS

The aim for GCMS and GC-EAD was to have a broader knowledge about which volatiles were present in the treatment materials and if there were response, to know which volatiles caused the response. The process of GCMS is explained in detail by Dalen *et al.* (2015).

The scanning of samples was done by an Agilent 6890 N Gas Chromatograph (GC), which was connected to an Agilent 5973 Mass Spectrometer (MS) which utilizes an autosampler for headspace samples. The GC used splitless mode at 250°C and an injection volume of 1µl with a 30-m fused silica Agilent J &W scientific DB-Wax separation column (Agilent Technologies), inner diameter of 0.25mm and film thickness of 0.25µm. The analytical column was coupled to a 2.5ml methyl-deactivated pre-column with 0.25mm diameter (Varian Inc. Lake Forest, Ca, USA) through a press-fit connector (BGB analytic AG, Boeckten, Switzerland). When the sample was injected, temperature was held at 40°C for 2 minutes, then raised with 6.9°C/min to 160°C and then 21.5°C/min to 250°C which was held for 3.6 minutes. The total running time was 27.18 minutes. Scan mode was used for the Mass Spectrometer with *m/z* 40 to 550 with a threshold of 50 and 2.86 scans/s. The temperature for transfer lines was set to 280°C, the ion source at 230°C and quadrupole at 150°C.

Volatiles were identified through a Deconvolution Reporting System (DRS, Agilent Technologies), which is a combination of mass spectral deconvolution and identification software (AMDIS, NIST) with a mass spectral library (NIST05 Database) and GC-MS software (Chemstation, Agilent technologies). The AMDIS database contained ~1100-1200 volatile compounds. To have a comparable retention time (RT) for the samples, RT was locked and referenced according to Internal Standard (ISTD) heptyl acetate at ~10.748min by using Chemstation retention time-locking program. Peaks that were present on the chromatogram, but not identified by the DRS were manually interpreted and checked in the NIST database and confirmed by Hans Ragnar Norli (NIBIO). The garlic samples were too concentrated (values of up to 6.5e+07 detected) and were thus diluted 10x and run through GCMS again, so it was easier to compare peaks.

GC-EAD

Dalen *et al.* (2015) described the parts and process for GC-EAD in detail. They used *Glypta heasitator* whilst I used *D. floralis*. The recordings of what the antennae responded to was recorded by a coupled GC-electro-antennogram detection (GC-EAD). The detection was done by an Agilent 6890N GC with an Agilent J & W scientific DB-Wax capillary column (Length 30m, inner diameter 0.25mm, film thickness 0.25µm), it was connected to an electroantennogram device and the temperature was 250°C (Syntech, Hilversum, The Netherlands). The effluent from the GC column was split at a ratio of 1:1 between the flame ionization detector and a *D. floralis* antennae that was removed from the fly by using micro-scissors to cut the head off. Tweezers were used to separate antennae from the head and to separate the two antennae. The antennae were placed carefully between electrodes (Figure 7). The effluent led to the EAD was delivered through a heated transfer line (Syntech) into a stream of humidified air in a glass tube (diameter 8mm, length 12mm) to the antennae. The excised antennae were mounted in a holder (EAG combi probe, Syntech), and electrically conductive gel (Parker, Fairfield, NJ, USA) was used to facilitate the contact between the electrodes and the antennae. The tips of the antennae were carefully inserted into a thin layer of gel that had been applied to the surface of the electrodes. The antennal signal and the FID signal were amplified and recorded simultaneously using Syntech software. This was performed on the headspace extracts of materials tested; Pellets with cyanobacteria, pellets without cyanobacteria, control, garlic and pure cyanobacteria material. The antennae were from flies that were 7-9 days old, and all the responses were replicated using a new pair of antennae. In total 5 replicates were taken from each material, totaling the number of 25 samples tested.

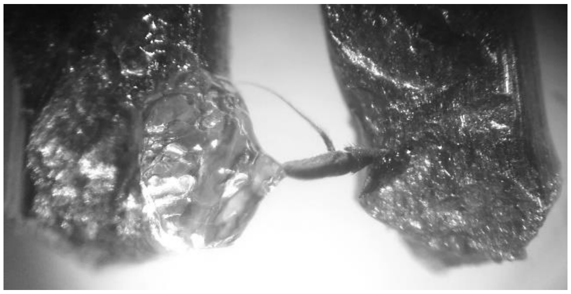

Figure 7 The gel was used to facilitate a good contact between antennae and electrodes. Important to notice is that the antennae were dry, so the pores are not hindered by fluids in detecting volatiles in the puffs of air.

Statistical analyses

The differences between field work treatments were analyzed using One-way ANOVA with a linear model: lm (Control ~ Garlic + Pellets_without + Pellets with cyanobacteria) (Table 2).

The effects of the different treatments (control, garlic, pellets without and pellets with cyanobacteria) contra distances travelled by *D. floralis* in the wind tunnel experiments were analyzed using One-way ANOVA (appendix 1) with a linear model: lm (distance ~ Category). Category were the different treatments and Distance was the given distance in values 0 (no response),50, 100, 150 and 200 from the distances, 0-50, 50-100, 100-150, over 150 and landing (200) respectively. These values were issued so that the data have bigger difference in value between them than just 0's and 1's. (response or no response).

A Tukey post-hoc comparison of means test at 95% α was applied over the same model, analyzing if there were any significant differences between the treatments, e.g.; Control-garlic, control – pellets with cyanobacteria. The results of the tukey test can be found in table 6 and 7.

The statistical program R commander, version 3.3.2 was used with the library(NMBU) package.

Results

Effects of treatments in the field (Tables 2-5)

The average number of eggs in garlic treatments was the highest with 443 eggs, whilst the other treatments were below 400 average. Control had the lowest amount of eggs with an average of 322 eggs. Garlic had 37% more eggs on average than control, pellets with cyanobacteria 15% and just pellets 13%. Which means that on an average scale for this year, control had the best results on oviposition behavior. A Linear model statistical test confirms this result. There was no treatment significant different from control, as is shown by the high P values in table 2.

Table 2 The data output of R commander for the linear model (Control ~ Garlic + Pellets_without + Pellets with cyanobacteria)

	Std. error	**P-value**
Intercept	78	0.233
Garlic	0.71	0.344
Pellets_without	0.46	0.246
Pellets_w_cyanobac	0.27	0.706

Field-trial results

Table 3 Shows eggs counted from sand harvested on 08-06-2016, with the different treatments and for the different replications. Treatment was applied 2nd of june. Approximate amount. Small differences between treatments (<30%). Control had the lowest amount of eggs, but sand was omitted.

	Replication	**I**	**II**	**III**	**Mean**
Treatment	Total				
(1) Garlic	390	140	120	130	130
(2) Pellets with cyanobacteria	240	60	80	100	80
(3) Control	30	10	10	10	10
(4) Pellets without	290	90	100	100	96.66
Control from plants on the outer layer	140				46.66

Table 4 Shows eggs counted from sand harvested on 16-06-2016, with the different treatments and for the different replications. Treatment was applied 8th of june. Approximate amount. Small differences between treatments on average (<15%)

	Replication	**I**	**II**	**III**	**Mean**
Treatment	Total				
(1) Garlic	590	230	180	180	196.66
(2) Pellets with cyanobacteria	510	170	270	70	170
(3) Control	510	270	140	100	170
(4) Pellets without	510	280	140	90	170

Table 5 Shows eggs counted from sand harvested on 23-06-2016, with the different treatments and for the different replications. Treatment was applied 16th of june. Approximate amount. Small differences between treatments on average (<15%)

	Replication	**I**	**II**	**III**	**Mean**
Treatment	**Total**				
(1) Garlic	350	119	111	120	116.66
(2) Pellets with cyanobacteria	368	226	100	42	122.66
(3) Control	286	91	110	85	95.33
(4) Pellets without	291	120	130	41	97

Wind Tunnel results

The results from Wind Trial 1 (WT#1) in figure 8 show variabilities between treatments; Especially in No response and Searching 100-150cm. But they are not significantly different between the treatments (p = 0.270, table 6). All data from WT#1 is in appendix 2

The results from WT#2 have smaller variabilities between treatments (Figure 9), a possible reason for these smaller numbers is discussed later. There are also no significant differences between treatments here (p=0.40-0.98, table 7). Overall in WT#1 and WT#2 the number of landings were low (<2). All data from WT#2 is in appendix 3

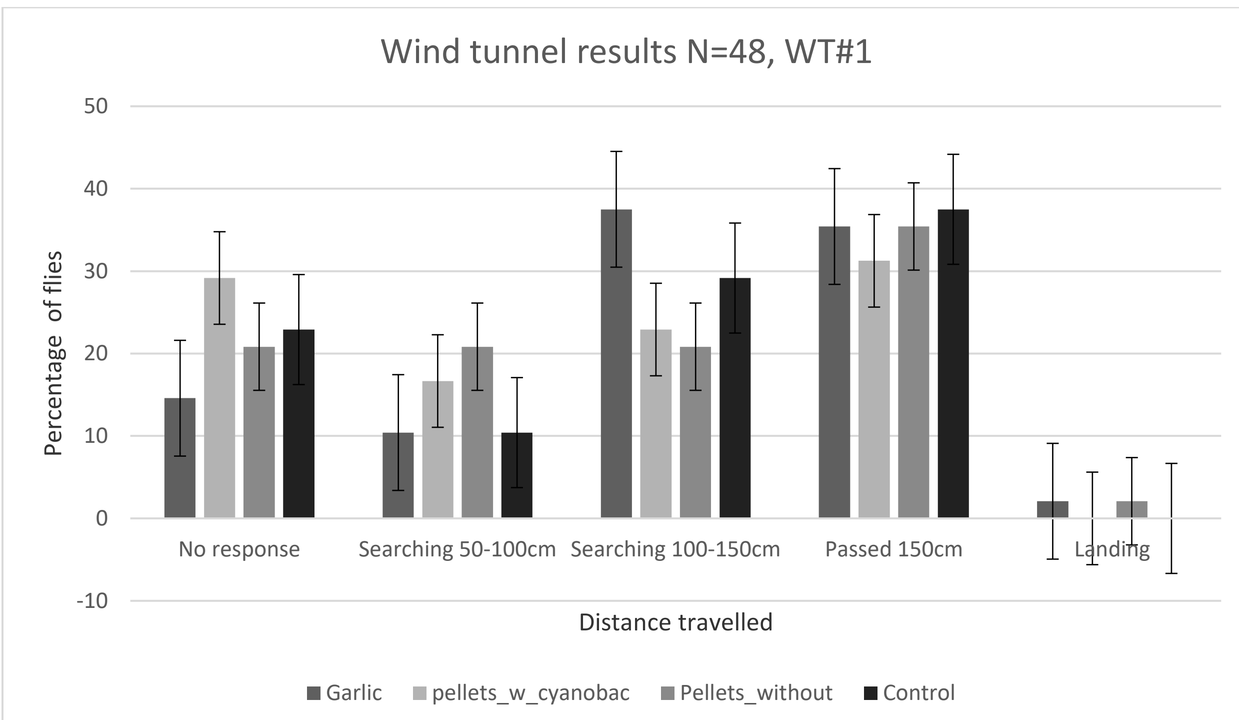

Figure 8 WT experiment #1 = Moldy. Showing the percentage (N=48) of flies which reached a given distance and no further (Flight from platform). If a fly reached 150cm, it passed through 50-100 and 100-150cm. The bars show standard error. No significant differences were found between treatments.

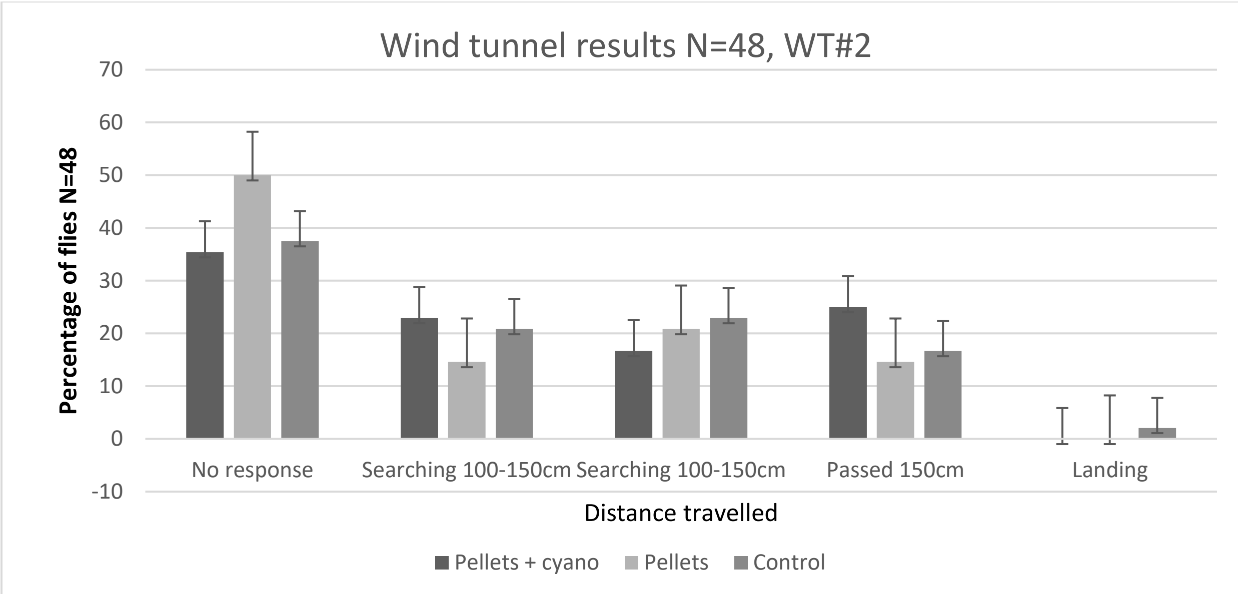

Figure 9 WT experiment #2 = Clean material. These trials were done with pellets that were not moldy. The bars are the Standard error. Garlic was excluded from these trials since it was not moldy and therefore had no reason to be done again.

Statistics of wind tunnel

Table 6 WT#1 statistical data. Tukey test output, 95% CI. Model: Distance ~ Category. No treatment is significantly different from another.

Linear hypotheses	P-value
Control-Garlic	0.778
Control – Pellets_w_cyanobacteria	0.824
Control – Pellets_without	1
Garlic – Pellets_w_cyanobacteria	0.270
Garlic – Pellets_without	0.778
Pellets_w_cyanobac – Pellets_without	0.824

Table 7 WT#2. Tukey test output 95% CI. Model: Distance ~ Category. No treatment is significantly different from another.

Linear hypotheses	P-value
Control – Pellets_w_cyanobacteria	0.979
Control – Pellets_without	0.513
Pellets_w_cyanobacteria – Pellets_without	0.397

GC-MS and GC-EAD

GCMS

The volatiles in Table 8 were those found in cyanobacteria, pellets with cyanobacteria and garlic samples. For volatiles with a connection to *Brassica* and/or *D. floralis* this is shown as extra information in the table; found on Pherobase.com, chemspider.com and pubchem.ncbi.nlm.nih.gov. Except in the acetic acid case, its origin was found in an article written by Prithiviraj, Vikram, Kushalappa, and Yaylayan (2004). The following volatiles were found in both cyanobacteria and pellets with cyanobacteria samples; 1-Hexanol, 2-ethyl-, Decamethylcyclopentasiloxane, Nonenal (Pelargonaldehyd) and Tridecane. A list over all volatiles found is in appendix 6

Table 8 List of volatiles found in; garlic, cyanobacteria and pellets with cyanobacteria. For volatiles used by Brassica and/or Diptera ssp this is shown in the last column. Volatiles in Bold and with a peak number are those that the antennae responded on in the garlic GC-EAD trials.

Peak	RT	Compound	CAS no.	Garlic	Cyanobac	Pellets with cyanobacteria	Used by
	3.94	*Decane*	124-18-5		X		*Brassica napus*
	3.99	Octametylcylcotetrasiloxane	556-67-2	X			
	4.36	Toluene	108-88-3	X		X	
	4.56	*Dodecane*	112-40-3	X	X		*Brassica napus*
	5.07	2-Hexanone	591-78-6	X		X	
	5.63	*Undecane*	1120-21-4	X	X		*Brassica napus / Diptera ssp (Attr)*
	6.48	Allyl sulfide	592-88-1	X	X[a]	X[a]	
	6.96	*Decamethylcyclopentasiloxane*	541-02-6	X	X	X	*Brassica napus / Brassica rapa*
	7.28	s-Limonene	138-86-3	X			
	8.32	Styrene	100-42-5			X	
	8.8	Unknown(phenylalanine)	0301003-N1002	X		X	
	9	*Octanal*	124-13-0		X		*Brassica napus / Diptera ssp (Attr)*

	9.34	*Tridecane*	629-50-5	X	X		*Brassica napus / Diptera ssp (Attr)*
	9.96	5-Hepten-2-one, 6-methyl-	110-93-0	X	X		
	10.44	Cyclohexasiloxane, dodecamethyl-	540-97-6	X	X		
	10.69	1,3-Dimethyl trisulfide	3658-80-8	X			
	11	*Nonanal (Pelargonaldehyd)*	124-19-6		X	X	*Brassica napus / Diptera ssp (Attr/phero)*
	11.39	*Tetradecane*	629-59-4		X		*Brassica napus*
	11.71	1,3-Di-tert-Butylbenzen	1014-60-4		X		
	12.05	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester[b]	20184-99-0	X			
	12.9	1-Hexanol, 2-ethyl-	104-76-7		X	X	
1	***13.24***	***Allyl di sulfide***	***2179-57-9***	***X***	***X[a]***	***X[a]***	
	13.27	*Decanal*	112-31-2	X	X		*Brassica napus ssp. oleifera / Diptera ssp (Attr/Kairo)*

	13.43	Cycloheptasiloxane, tetradecamethyl-	107-50-6		X
	13.6	anti-Benzaldoxime	622-32-2	X	
	13.98	Linalool	78-70-6	X	
2	***14.69***	***Tri sulfide, Allyl tri sulfide***	***34135-85-8***	***X***	
	16.5	alfa-Terpineolacetate	80-26-2	X	
	16.66	Heptadecane	629-78-7		X
3	***17.0566***	***3-Vinyl-1,2-dithiacyclohex-4-ene***	***62488-52-2***	***X***	
4	***17.8***	***Undecylacetate (ISTD)***	***1731-81-3***	***X***	
	18.5	trans-1,10-Dimethyl-trans-9-decalol	2201016-N1002		X
	18.76	3-Vinyl-1,2-dithiacyclohex-5-ene	62488-53-3	X	
	18.84	Naphthalene, 2-methyl-	91-57-6	X	
	18.92	Guaiacol (Phenol, 2-methoxy-)	90-05-1	X	

19.73	Phenylethyl Alcohol	60-12-8	X		
20.1	(E)-beta-Ionone	79-77-6		X	
20.99	Propachlor	1918-16-7	X		
22.8	Pentanoic acid, 5-hydroxy-, 2,4-di-t-butylphenyl esters	166273-38-7		X	
23.16	Phthalic acid, cyclobutyl ethyl ester	A71IYV~1-N1002		X	
23.86	Tranylcypromine	155-09-9	X		
25.58	Diisooctyl adipate	1330-86-5	X		X

a) Volatiles that are most likely present because of contamination.

b) (Prithiviraj *et al.*, 2004)

c) Attr => Attractant

d) Phero => Pheromone

e) Kairo => Kairomone

GC-EAD

Figure 11 and 12 show that the antennae responded (Black lines) to the same volatiles (blue peaks). The Blue peaks were cross-referenced with those from the GCMS (Figure 13) chromatography and the following volatiles were found to be the ones that the *D. floralis* antennae responded on.

1) Allyl di Sulfide

2) Allyl Tri sulfide

3)3-vinyl-1,2-dithiacyclohex-4-ene

4) Undecyl acetate (ISTD)

In any of the other treatment samples there were not two or more antennae that responded to the same volatiles/peaks, they are thus not included here but can be found in appendix 5.

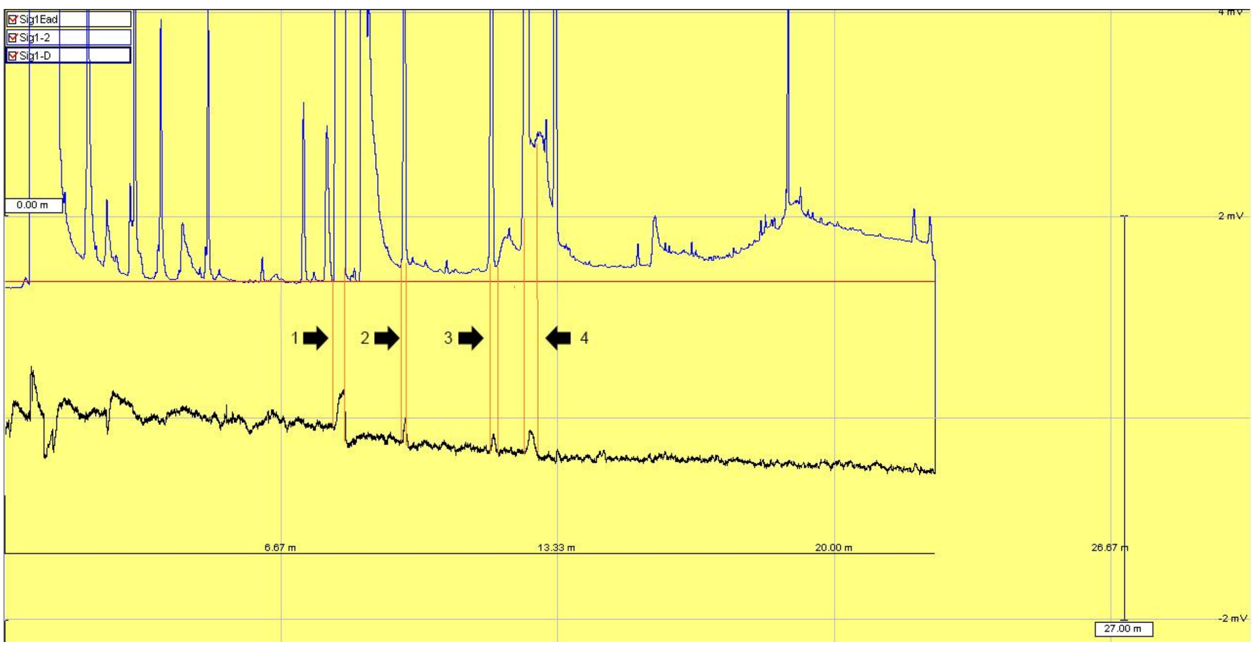

Figure 11 Antennae #1 results of GC-EAD on sample 1426 Garlic. Peak 1 is Allyl Disulfide, peak 2 is Allyl Trisulfide, peak 3 is 3-vinyl-1,2-dithiacyclohex-4-ene and peak 4 is Undecyl Acetate.

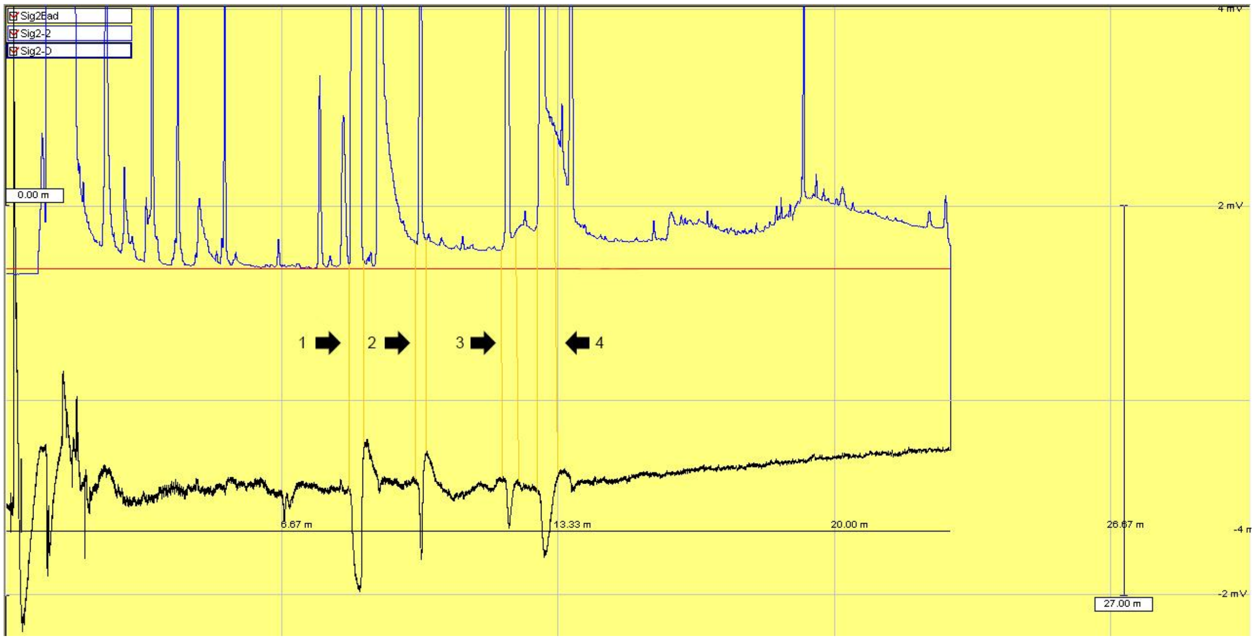

Figure 12 Antennae #2 results on sample 1426 Garlic. Peak 1 is Allyl Disulfide, peak 2 is Allyl Trisulfide, peak 3 is 3-vinyl-1,2-dithiacyclohex-4-ene and peak 4 is Undecyl Acetate.

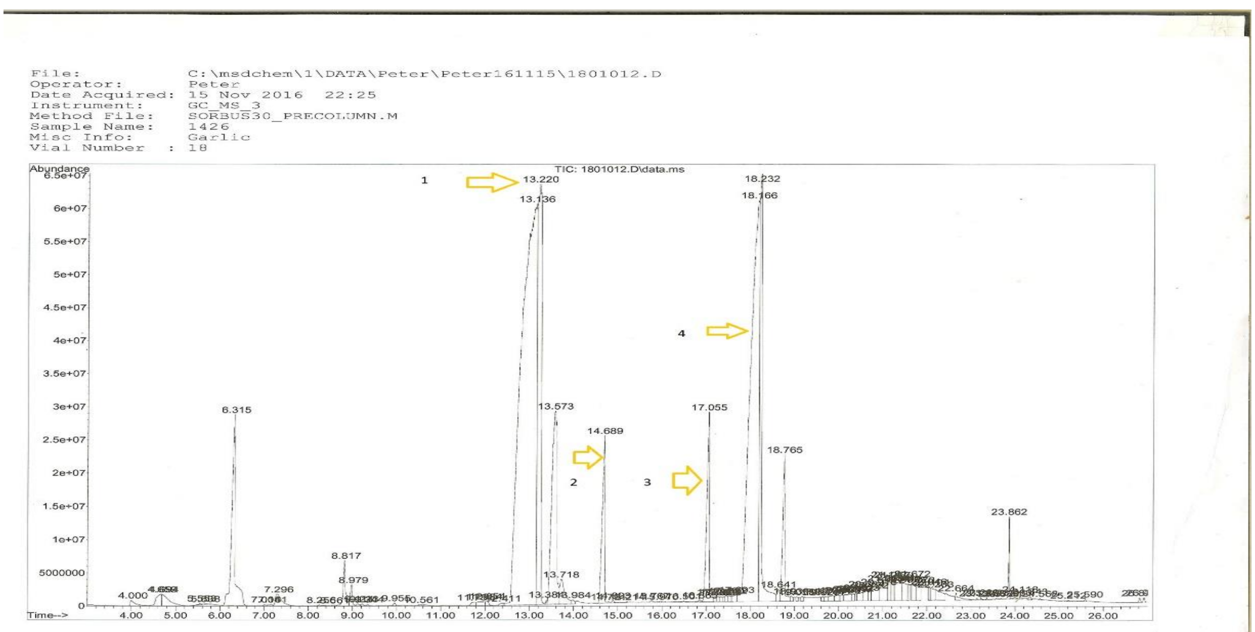

Figure 13 Chromatography of GCMS peaks. Peak 1 is Allyl Disulfide, peak 2 is Allyl Trisulfide, peak 3 is 3-vinyl-1,2-dithiacyclohex-4-ene and peak 4 is Undecyl Acetate.

Material, methods and results from previous research from 2015 in the Fertibug project.

The material, methods and results here are not mine. They are performed and written by Dr. Maria Björkman (Bioforsk/NIBIO), portions are translated from Swedish to English.

Effects of Fertibug – Pellets with cyanobacteria – on D. floralis oviposition in choice and no choice tests + odor analyze.

Background and general thoughts:

The pellets are produced by combining manure, residues from biogas production and cyanobacteria with potential to reduce oviposition by the cabbage and turnip root flies.

A combination of choice and no-choice is designed to investigate the potential effect of pellets on *D. floralis* oviposition. In the choice test two plants are placed in the same cage to see if the plants with pellets with cyanobacteria will be the least preferred choice. If we find an effect – we can say that the pellets work, at least in a situation where the flies are provided with an alternative. However, a lack of effect in this experiment may be explained by the fact that the odors released from the pellets are affecting the whole environment of the cage, that is, that the scale of the experiment is unsuitable to investigate this potential effect.

In the no-choice test we may find that the pellets delay oviposition, that is making the plant a less suitable host plant. The time difference between oviposition on plants with pellets compared with control plants is the time flies "invest in" to find a more suitable host plant.
A lack of effect may be explained by the superiority of Chinese cabbage cues over the potentially deterrent cues released by the pellets. It may be possible to get other results if a less attractive plant is used. However, if an effect is found for Chinese cabbage, this product may have a potential.

Either of these experiments may give a "falsely negative result" but a combination will have a good chance to give us the answer regarding the potential of pellets to reduce *D. floralis* oviposition.

There will be two controls in the experiments – a treatment without pellets and a treatment with pellets produced without cyanobacteria.

In addition – odor sampling and analyze will be performed in February 2015

Note – there may be difficult to know if a potential effect is explained by odor or contact, as flies may come in direct contact with pellets or compound ds derived from pellets through the moist soil/sand. At this stage, there are no resources for a wind tunnel experiment

Plants used

Chinese cabbage Bilko, organic seeds (LOG AS). LOT: 577500.

Plants are sown for use approx. 5 weeks after emergence.

Sown seeds are put in room V121 (24 C) until emergence (ca 2 cm), and are then moved into room V120 (20 C). At 5-6 cm height, seedlings are transplanted into individual pots.

Ca 35 seeds are sown weekly between 19/1 and 16/2, to ensure to have at least 20 of equal size and appearance each week.

Experiment 1 – The potential of Fertibug to prevent/delay oviposition in a no choice situation

Treatments:

1) Plants with pellets with Cyanobacteria 3*3 = 9

2) Plants with blank pellets 3*3 = 9

3) Plants with no pellets 3*3 = 9

Materials and methods:

- To avoid odor contamination, the replicates with pellets and controls are placed in separate climatic chambers
- Conditions: Day X-X, Night X-X. Temperature: Humidity:
- 3 small cages are placed in each of the chambers (9 in total), each cage prepared with food and water.

- 9 Chinese cabbage plants, equally in age and appearance are prepared by evening the soil and adding 100 ml of sand on the surface (Water the plants before adding sand).
- Pellets are added to 6 plants, 3 with and 3 without cyanobacteria
    - 2.4g pellets (with and without cyanobacteria)
    - 2.4g adds to 300kg pellets/ha
- 1 Chinese cabbage plant is placed in each cage on a large petri dish (3 of each treatment)
- The 3 plants of the 3 treatments are placed in separate climate rooms (20, 22 and 23)
- 5 *D floralis* females, 7-9 days old are placed in each cage (on a Monday) (45 flies are needed in total).
- After 48 h (Wednesday), plants are removed from the cages, carefully so no flies escape.
- A 2nd set of plants are added to the cages (as above)
    - This is done to see if there is a delay effect, for example to see if the cyanobacteria cause the fly to lay eggs at later point.
        - This has been observed in either no choice tests, flies can wait till a better alternative appears.
- To count eggs: The plant is carefully examined for eggs. Start with other leaves, cut one at the time and look for eggs on both sides. Eggs are often laid along the veins. When all bigger leaves are cut, look for eggs hidden in the growth point, and on the stem base. Pick them up with a fine brush. Finally, remove the sand carefully and look for eggs in the sand by flotation.
- After 48 more hours (Friday): Repeat egg counting on the 2nd set of plants and terminate the experiment.
- Monday (second week): Start again with 9 plants but change rooms
- Repeat sequence as above with egg counts on Wednesday and Friday.
- Monday (third week) Start again with 9 plants but change rooms
- Repeat sequence as above with egg counts on Wednesday and Friday

Results experiment 1

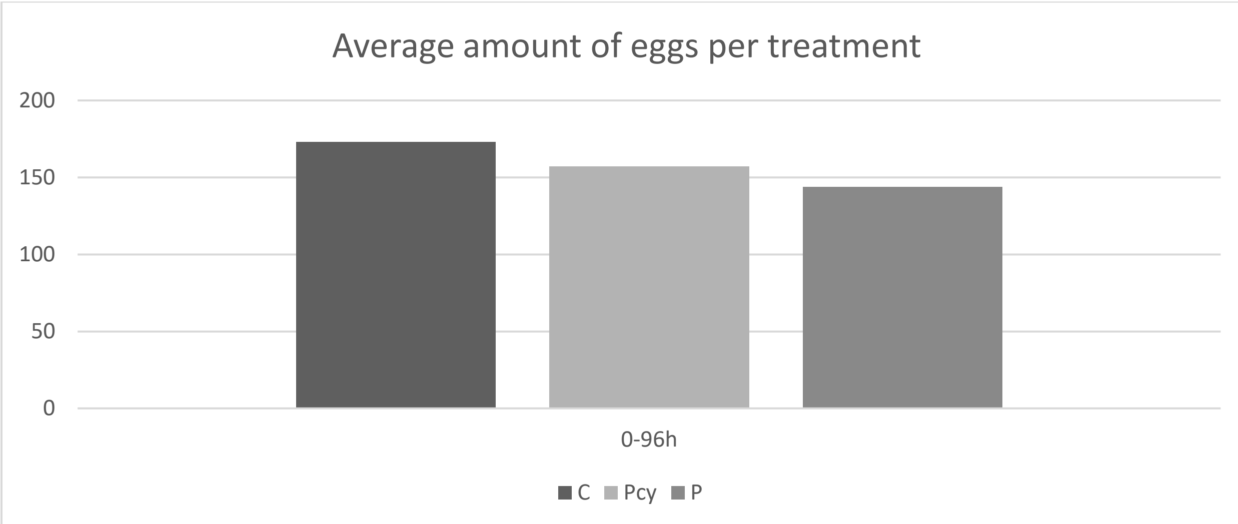

Figure 14 The average amount of eggs laid per treatment in 96 hours, where C is control, Pcy is Pellets with cyanobacteria and P is pellets without.

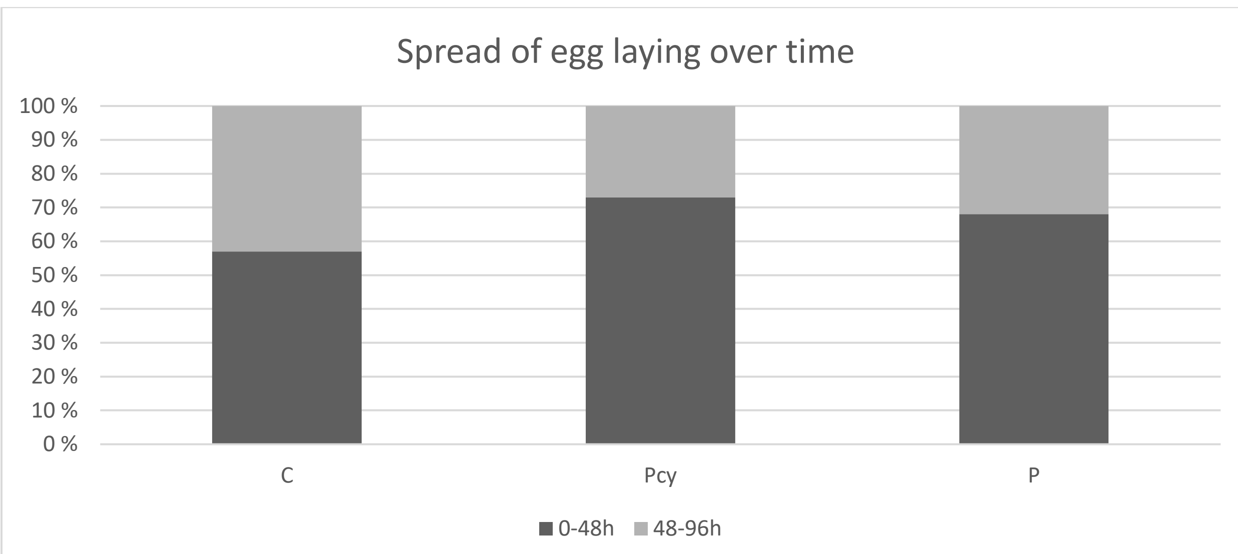

Figure 15 The percentage of eggs found in time frame 0-48 h or 48-96 h per treatment, where C is control, Pcy is Pellets with cyanobacteria and P is pellets without.

The total amount of eggs laid after 96 hours show no significant results. Instead, there's a weak trend that the treatment with pellets has fewer amount of eggs. Just pellets had the fewest amount of eggs of all treatments.

The spread of egg laying shows no significant differences either, there is a weak trend that flies lay a large percentage of their total eggs at an early point in pellets treatment.

We can conclude that with the setup from this experiment and the doses tested, there is no apparent effect in reducing egg laying by *D. floralis*. If there were a repellent effect, it should have been shown with this setup because the flies had the opportunity to wait with egg laying.

Experiment 2 – The potential of FERTIBUG to prevent oviposition in a choice situation

Treatments:

1) Pellets with cyanobacteria vs no pellets (control) 4 cages*2 times = 8
2) Pellets (blank) vs no pellets (control) 4 cages*2 times = 8
3) Pellets with cyanobacteria vs pellets (blank) 4 cages*2 times = 8

Materials and methods:

- 12 large cages are prepared in room MU20 with food and water.
- 24 Chinese cabbage plants, equally in age and appearance are prepared by evening the soil and adding 100 ml of sand on the surface (Water the plants before adding sand).
- On 16 of the plants pellets are added, 8 with bacteria and 8 blank
- 2 Chinese cabbage plants of different treatments according to plan, is placed in each cage on large petri dishes
- 5 *D floralis* females, 7-9 days old are placed in each cage (on a Monday) (60 flies are needed in total).
- After 48 h (Wednesday), plants are removed from the cages.
- To count eggs: The plant is carefully examined for eggs. Start with other leaves, cut one at the time and look for eggs on both sides. Eggs are often laid along the veins. When all bigger leaves are cut, look for eggs hidden in the growth point, and on the stem base. Pick them up with a fine brush. Finally, remove the sand carefully and look for eggs in the sand by flotation.
- As 24 plants will be terminated on the same day, the last step – floatation- may be done next day. Put the pots in the cold room overnight.
- Repeat the week after

Results experiment 2

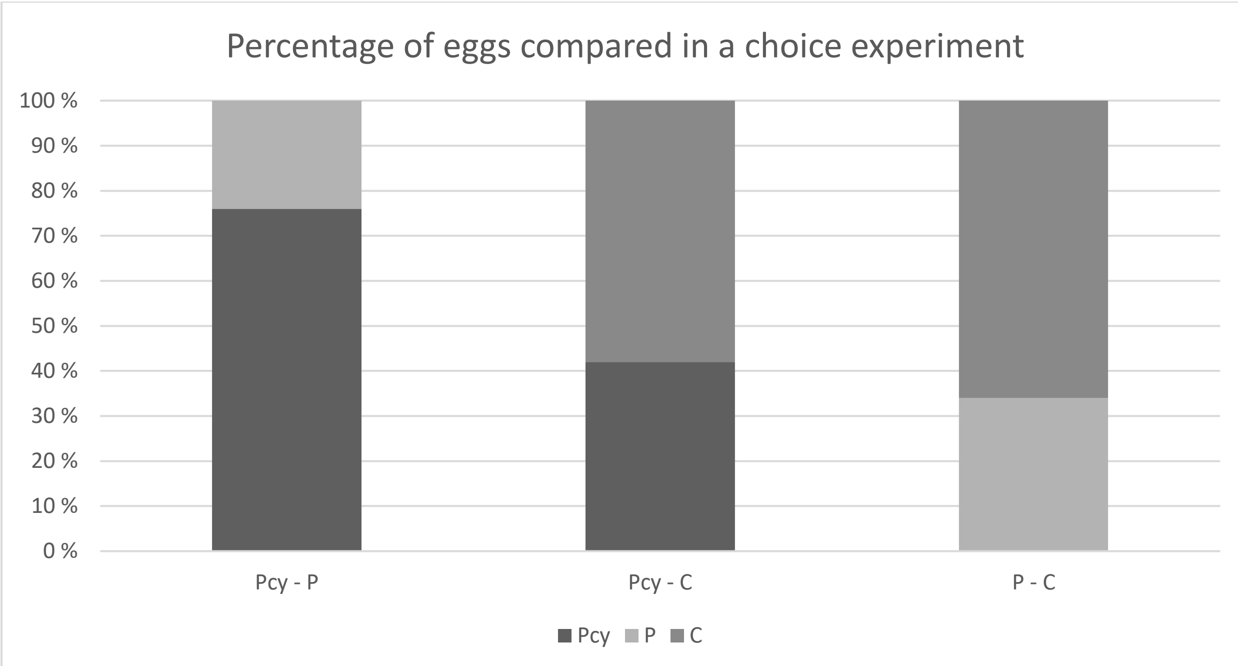

Figure 16 The percentage of eggs compared in a choice experiment. Total of 8 replications.

- In Pcy-P more eggs in Pcy in 7 out of 8 replications.
- In Pcy-C more eggs in control in 5 out of 8 replications
- In P-C more eggs in control in 6 out of 8 replications.

We conclude that after a statistical analysis (2-way ANOVA, every combination for itself), there is a significant difference in the cages with Pcy-P.

Experiment 3 – Characterization of odors released from pellets (February + March)

This was never completed after my knowledge.

- Odor sampling of pellets

  Treatments:
  - Pellets
  - Plant system (as some odors may be present both in plant/soil as in pellets?)
  - Control
- Analyze GC-MS

(Alt: Plant with pellets, plant without pellets, pellets, control?)

Field work results Fertibug 2015

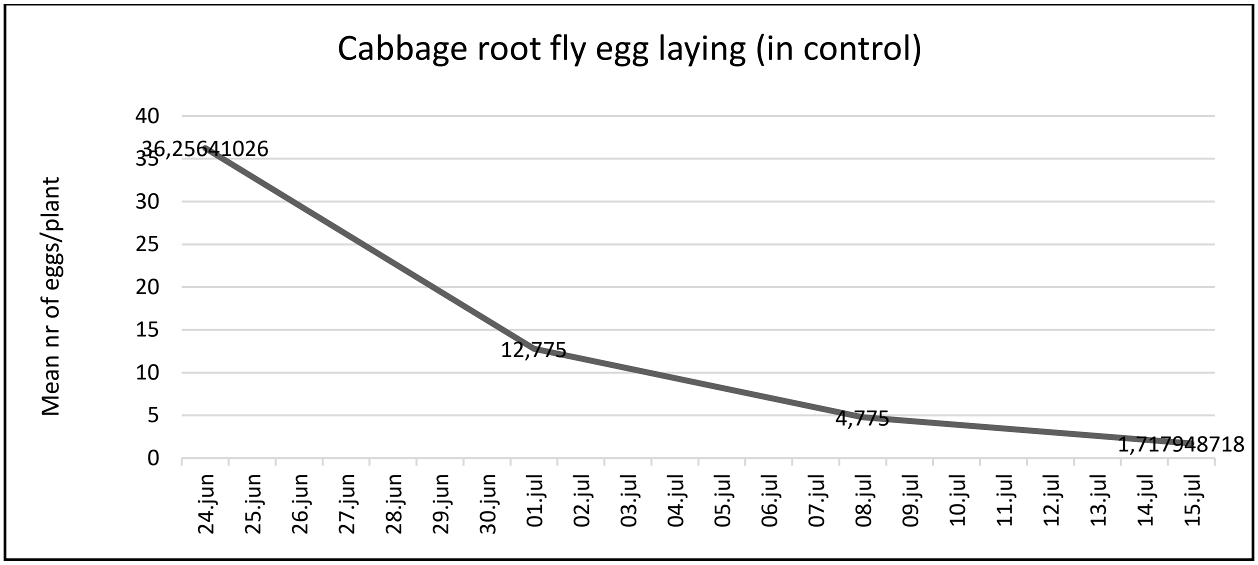

Figure 17 A graph showing the average number of eggs in the different weeks in control only. Measured once a week for four weeks.

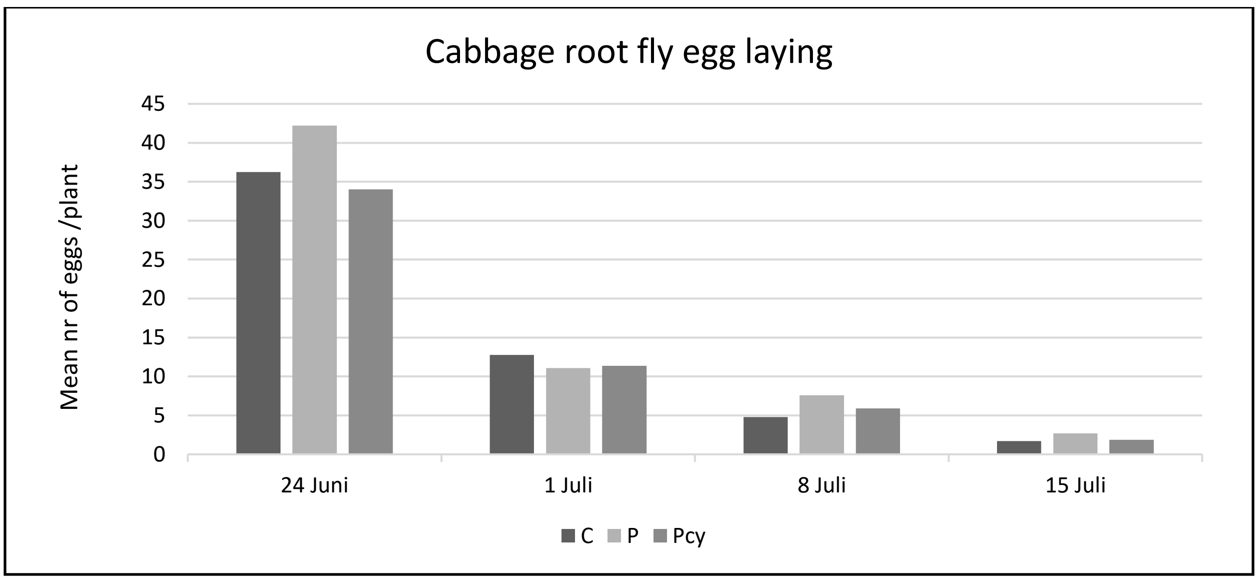

Figure 18 Graph showing the average number of eggs in Control, pellets, pellets + cyanobacteria. Measured once a week for four weeks.

There are no significant differences between treatments in average number of eggs laid per plant per treatment.

Table 9 A table showing the average number of eggs per week.

	24 Juni	**1 Juli**	**8 Juli**	**15 Juli**
C	*36.2564103*	12.775	4.775	1.71794872
P	*42.2051282*	11.075	7.575	2.675
Pcy	*34.025641*	11.35	5.875	1.875

Discussion

Field-work

There were no significant differences in number of eggs laid in the treatments (Table 2). On average, control had the lowest number of eggs and garlic had the highest, 37% more than control (322 vs 443). Pellets without cyanobacteria had 363 eggs on average in all plots and pellets with cyanobacteria had 372 eggs. We can conclude with that in the field, pellets with cyanobacteria had no effect on oviposition by *D. floralis*.

But there are some things that should be taken into consideration for that year. There was a large infestation of *P. xylostella* that happened that year (Scharer & NIBIO, 2016). A large amount of *P. xylostella* was present on the cauliflower which resulted in all the plants being under heavy attack. And since *Brassica* species are rich on glucosinolates they were most likely emitting many glucosinolate-based volatiles (Radojčić Redovniković, Glivetić, Delonga, & Vorkapić-Furač, 2008) and the increased attraction for the plants may have been higher than the repellent effects of the natural insecticides (Liang, Chen, & Liu, 2003). This can be an explanation as to why there were small differences between treatments. But the preliminary results from Maria Bjorkman in 2015 show similar results to mine, no significant difference between treatments. And there was no resemblance to the results in Hungary where there was reported to be 100% repellent effect (Benedek, 2011).

Wind tunnel

There was no significant difference between treatments in a more controlled environment. This is backed by the statistics (Table 6 and 7), the differences between the treatments are so low and the number of landings is almost non-existent. As mentioned previously, the wind tunnel experiments were redone because the pellets were moldy. When the new experiments started in the wind tunnel, a decline was already observed in the *D. floralis* culture. According to Dr. Gunda Thöming (pers. comm.) this is normal in insect cultures that are held inside climate-controlled rooms, they go through something known as autumn depression and this can be a reason as to why the flies were less motivated to respond in the wind tunnel.

As previously mentioned, Havukkala (1987) observed that *D. floralis* females used visual cues in close ranges to find their host. In the wind tunnel experiments however, *D. floralis* never took the last jump to the host plant, even when they were just 2cm away from the plant, sitting on the wall. There are several possible explanations as to why *D. floralis* females did not use visual cues at close range to find their host. It is possible that in the wind tunnel, they did not have the opportunity to move freely around the plant, because they had a limited area available. This may have affected their behavior when approaching the plant. Another possible explanation is that in these experiments, plants were used from a climate-controlled room, that means they were lacking natural lighting, environmental effects such as wind, temperature fluctuating and attacks from other insects. It has been shown in a study that the difference between sheltered plants e.g. that plants from a climate-controlled room have a different effect on insects, and are less appealing than plants used which came from a field (Thöming & Knudsen, 2014). This was tested when developing the protocol, and a plant collected from the field which had been growing there for at least 6 weeks was used. The differences in response to this plant compared to the ones from the climate-controlled room were large, out of 24 flies tested 7 landings were observed, whilst in the ~400 flies tested in both trials, it did not exceed 3 landings. This is also a good indicator that the conditions in the wind tunnel were good for all the other experiments done.

During the wind tunnel experiments, problems arose with the *D. floralis* culture, a growing number of *Drosophilidae ssp* were present in the cages and they somehow inhibited the *D. floralis* from hatching and growing to their optimal size; most likely because they did not have the optimal food quantity. This was corrected by examining the pupae before they were put into cages and removing pupae from *Drosophilidae ssp*. As mentioned before, autumn depression also happened to the culture, and one of the side-effects of this could be less responses in the wind tunnel.

GC-EAD and GCMS

The list of volatiles that were present in three or more samples contains many volatiles that are used by *Brassica* species and herbivores associated with *Brassica* species. One of those volatiles is S-limonene, Košťál (1992) has done research on the orientation behavior of newly hatched *D. radicum* larvae to volatile plant metabolites, *D radicum* and *D. floralis* tend to react to the same stimuli and have similar biology and behavior (Björkman *et al.*, 2007). S-limonene was tested by Košťál (1992) and seemed to be repellent, but only in high concentrations (10µl and 100µl).
Phenylalanine is another volatile that was detected in garlic and pellets with cyanobacteria. It is a protein amino acid which is used to produce aromatic glucosinolates, and it is generally well known that *D. floralis* is stimulated by glucosinolates (Björkman *et al.*, 2007; Chilcott, 1997).
Garlic sample 1426 contained many volatiles that are known to be used by many insects as allomones, attractants, kairomones, pheromones and many plants produce them as semiochemicals.

Looking at the GC-EAD results (Figure 11-13), there were few volatiles that *D. floralis* antennae responded to, garlic was the only treatment were at least two antennae responded on the same peaks. There were no clear repeated antennae responses to volatiles in pure cyanobacteria or pellets with cyanobacteria. The three volatiles (Excluding the ISTD material) that *D. floralis* responded to was; Allyl di sulfide (Diallylsulfane), Allyl trisulfide and 3-vinyl-1,2-dithiacyclohex-4-ene are all common components of garlic. There has been research done on the effects of garlic juice containing these volatiles on *D. radicum*. But they appeared to be toxic to larvae and high concentrations were needed to have toxic effect on adults (Prowse, Galloway, & Foggo, 2006).

Every sample type, except control contained Allyl sulfide, Allyl disulfide and other typical garlic volatiles. The reason behind this can be because of contamination. Due to maintenance of the cooling system, the material of pellets, pellets with cyanobacteria and garlic were stored in a small refrigerator together, instead of a large cooler room. The refrigerator was saturated with odors from the garlic, and it is highly likely that the pellets were thus contaminated by garlic volatiles, which caused them being found by the GCMS in those samples.

Dr. Maria Björkman's research from 2015 in the Fertibug project.

No choice experiment

The no choice results (Figure 14 and 15) from the preliminary trials with Dr. Maria Björkman show that the amounts of eggs laid by *D. floralis* have small differences between treatments. The timeframe results seem to favor 0-48h for egg laying. Pellets with cyanobacteria have no repellent effect on *D. floralis* egg laying in a no choice trial.

Choice experiment

The results from the choice experiment (Figure 16) shows that when adult *D. floralis* females have a choice in which treatment to lay eggs on they prefer pellets with cyanobacteria over pellets without in 7-8 replications, prefer control over pellets with cyanobacteria 5 out of 8 replications and prefer control over pellets without in 6 out of 8 replications.

Field work trials

The results from the field work (Figure 17, 18 and table 9) show that the differences between treatments were small. There was no significant difference between eggs laid on the different treatments. These results are the same as in my work, pellets with cyanobacteria had no repellent effect on *D. floralis*.

Conclusion

The field work, wind tunnel, Dr. Maria Björkman's field work and cage experiments all show the same results; Pellets with cyanobacteria have no observable effect on *D. floralis* compared to control. The cyanobacteria species used in this study were *Nostoc ssp* and *Pseudoanabaena ssp*, and the production method to produce these pellets together with the cyanobacteria can play a role as to why there was no effect. Looking at the full list of volatiles found in the pure cyanobacteria material, and that of the pellets with cyanobacteria there is clear evidence that somewhere in the process of combining these there were volatiles that disappeared. This is especially worrisome if the active ingredient that should be responsible for repelling *D. floralis* is not there, and this should be looked further into. Since there are so many different cyanobacteria species, with each their own range of secondary metabolites they exhibit, there is a large variation of species with potential to use. Concentrations of volatiles and blends are also very important to many species; this is something that should be considered more closely.

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Appendix 1

Output

Submit

```
Call:
lm(formula = distance ~ Category, data = Windtunnel)

Residuals:
    Min      1Q  Median      3Q     Max
-100.00  -50.00   11.46   61.46  111.46

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)        88.8021     4.2661  20.816   <2e-16 ***
Category(control)  -0.2604     7.3891  -0.035    0.972
Category(garlic)   11.1979     7.3891   1.515    0.131
Category(p_cyano) -10.6771     7.3891  -1.445    0.150
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

s: 59.11 on 188 degrees of freedom
Multiple R-squared: 0.0172,
Adjusted R-squared: 0.001518
F-statistic: 1.097 on 3 and 188 DF,  p-value: 0.3518
```

The linear model to see if any treatment was significant towards distance. Where Distance was the given distance in values; no response= 0, 50-100 = 50, 100-150 = 100, passed 150= 150 and landing 200, these values were given so that the data has a bigger difference in value between them than just 0's and 1's

Output

Submit

```
         Simultaneous Confidence Intervals and Tests for General Linear Hypotheses

Multiple Comparisons of Means: Tukey Contrasts


Fit: lm(formula = distance ~ Category, data = Windtunnel)

Quantile = 2.5922
Minimum significant difference = 31.2777
95% confidence level

Linear Hypotheses:
                    Lower  Center   Upper Std.Err t value P(>t)
control-garlic    -42.736 -11.458  19.819  12.066  -0.950 0.778
control-p_cyano   -20.861  10.417  41.694  12.066   0.863 0.824
control-p_without -31.278   0.000  31.278  12.066   0.000 1.000
garlic-p_cyano     -9.403  21.875  53.153  12.066   1.813 0.270
garlic-p_without  -19.819  11.458  42.736  12.066   0.950 0.778
p_cyano-p_without -41.694 -10.417  20.861  12.066  -0.863 0.824
(Adjusted p values reported -- single-step method)
```

Figure 12 Tukey test 95% CI.

Appendix 2

Test_number	Insect number	Age_fly	Group	Treatmen	Type_choi	Date	T	H	No_respond	Searching_50_100	Searching_10	Passed_150	Landing_onp	Starting_t	Finishing_	Weather
1	1	7_10	I	Garlic	Nochoice	23.aug	23	66		00:15				10:00	10:10	cloudy
2	2	7_10	I	Garlic	Nochoice	23.aug	23	66		00:15				10:00	10:10	
3	3	7_10	I	Garlic	Nochoice	23.aug	23	66		00:05	00:20			10:00	10:10	
4	4	7_10	II	Garlic	Nochoice	23.aug	23	66		00:05	06:00			10:12	10:22	
5	5	7_10	II	Garlic	Nochoice	23.aug	23	66				00:05		10:12	10:22	
6	6	7_10	II	Garlic	Nochoice	23.aug	23	66	X					10:12	10:22	
7	7	7_10	III	Garlic	Nochoice	23.aug	23	65			02:00			10:24	10:34	
8	8	7_10	III	Garlic	Nochoice	23.aug	23	65	X					10:24	10:34	
9	9	7_10	III	Garlic	Nochoice	23.aug	23	65	X					10:24	10:34	
10	10	7_10	IV	Garlic	Nochoice	23.aug	23	65			00:15			10:36		
11	11	7_10	IV	Garlic	Nochoice	23.aug	23	65		00:27	01:25			10:36		
12	12	7_10	IV	Garlic	Nochoice	23.aug	23	65	X					10:36		
13	1	7_10	I	Garlic	Nochoice	23.aug	23	65		00:33				10:53	11:03	
14	2	7_10	I	Garlic	Nochoice	23.aug	23	65			00:45			10:53	11:03	
15	3	7_10	I	Garlic	Nochoice	23.aug	23	65				04:00		10:53	11:03	
16	4	7_10	II	Garlic	Nochoice	23.aug	23	65			00:05**	04:00		11:06	11:16	
17	5	7_10	II	Garlic	Nochoice	23.aug	23	65		00:41	03:31			11:06	11:16	
18	6	7_10	II	Garlic	Nochoice	23.aug	23	65	X					11:06	11:16	
19	7	7_10	III	Garlic	Nochoice	23.aug	23	64				02:45		11:18	11:28	
20	8	7_10	III	Garlic	Nochoice	23.aug	23	64				05:05		11:18	11:28	
21	9	7_10	III	Garlic	Nochoice	23.aug	23	64	X					11:18	11:28	
22	10	7_10	IV	Garlic	Nochoice	23.aug	24	64			00:26	01:02		11:30		
23	11	7_10	IV	Garlic	Nochoice	23.aug	24	64		00:02**	01:10			11:30		
24	12	7_10	IV	Garlic	Nochoice	23.aug	24	64		00:02**	01:19			11:30		

Figure 5 Garlic WT#1 trials first 24

Test_number	Insect number	Age_fly	Group	Treatmen	Type_choi	Date	T	H	No_respond	Searching_50_100	Searching_10	Passed_150	Landing_onp	Starting_t	Finishing_	Weather
1	1	6_9	I	Garlic	Nochoice	31-Aug	23	63		0:12	1:43			11:20	11:30	Sunny
2	2	6_9	I	Garlic	Nochoice	31-Aug	23	63				1:12		11:20	11:30	
3	3	6_9	I	Garlic	Nochoice	31-Aug	23	63			1:50			11:20	11:30	
4	4	6_9	II	Garlic	Nochoice	31-Aug	23	64				0:07		11:33	11:43	
5	5	6_9	II	Garlic	Nochoice	31-Aug	23	64		0:10	1:57			11:33	11:43	
6	6	6_9	II	Garlic	Nochoice	31-Aug	23	64		0:33	2:21			11:33	11:43	
7	7	6_9	III	Garlic	Nochoice	31-Aug	23	63			0:11	3:45		11:46	11:56	
8	8	6_9	III	Garlic	Nochoice	31-Aug	23	63		0:11				11:46	11:56	
9	9	6_9	III	Garlic	Nochoice	31-Aug	23	63			1:15			11:46	11:56	
10	10	6_9	IV	Garlic	Nochoice	31-Aug	23	64			4:35			11:58	12:08	
11	11	6_9	IV	Garlic	Nochoice	31-Aug	23	64				0:20		11:58	12:08	
12	12	6_9	IV	Garlic	Nochoice	31-Aug	23	64		3:00	6:50			11:58	12:08	
13	1	6_9	I	Garlic	Nochoice	31-Aug	24	61			0:15	2:43	9:23	12:14	12:24	
14	2	6_9	I	Garlic	Nochoice	31-Aug	24	61			0:17	2:00		12:14	12:24	
15	3	6_9	I	Garlic	Nochoice	31-Aug	24	61		0:25				12:14	12:24	
16	4	6_9	II	Garlic	Nochoice	31-Aug	24	62			0:12	0:52		12:26	12:36	
17	5	6_9	II	Garlic	Nochoice	31-Aug	24	62			0:24	9:18		12:26	12:36	
18	6	6_9	II	Garlic	Nochoice	31-Aug	24	62	X					12:26	12:36	
19	7	6_9	III	Garlic	Nochoice	31-Aug	24	63		0:12		3:00		12:39	12:49	
20	8	6_9	III	Garlic	Nochoice	31-Aug	24	63		1:24		2:45		12:39	12:49	
21	9	6_9	III	Garlic	Nochoice	31-Aug	24	63				0:45		12:39	12:49	
22	10	6_9	IV	Garlic	Nochoice	31-Aug	24	63		00:05**	2:33	6:00		12:51	13:01	
23	11	6_9	IV	Garlic	Nochoice	31-Aug	24	63		0:12	2:46			12:51	13:01	
24	12	6_9	IV	Garlic	Nochoice	31-Aug	24	63		0:12	2:46			12:51	13:01	

Figure 6Garlic WT#1 trials, the last 24 flies

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	5_9	I	Cyanobact	Nochoice	24-Aug	23	64			0:35			11:54	12:04	cloudy
2	5_9	I	Cyanobact	Nochoice	24-Aug	23	64		0:47	2:35			11:54	12:04	
3	5_9	I	Cyanobact	Nochoice	24-Aug	23	64				1:25		11:54	12:04	
4	5_9	II	Cyanobact	Nochoice	24-Aug	23	62		0:47		2:25		12:06	12:16	
5	5_9	II	Cyanobact	Nochoice	24-Aug	23	62			0:53	1:47		12:06	12:16	
6	5_9	II	Cyanobact	Nochoice	24-Aug	23	62				2:00		12:06	12:16	
7	5_9	III	Cyanobact	Nochoice	24-Aug	23	63			1:05			12:19	12:29	
8	5_9	III	Cyanobact	Nochoice	24-Aug	23	63			1:12			12:19	12:29	
9	5_9	III	Cyanobact	Nochoice	24-Aug	23	63				1:00		12:19	12:29	
10	5_9	IV	Cyanobact	Nochoice	24-Aug	24	62		0:20		0:31		12:30	12:40	
11	5_9	IV	Cyanobact	Nochoice	24-Aug	24	62		0:15	1:23			12:30	12:40	
12	5_9	IV	Cyanobact	Nochoice	24-Aug	24	62	X					12:30	12:40	
1	5_9	I	Cyanobact	Nochoice	24-Aug	23	62		0:05				12:42	12:52	
2	5_9	I	Cyanobact	Nochoice	24-Aug	23	62		0:10	2:45	3:00		12:42	12:52	
3	5_9	I	Cyanobact	Nochoice	24-Aug	23	62	X					12:42	12:52	
4	5_9	II	Cyanobact	Nochoice	24-Aug	24	64		0:23		2:52		12:54	13:04	
5	5_9	II	Cyanobact	Nochoice	24-Aug	24	64			2:45			12:54	13:04	
6	5_9	II	Cyanobact	Nochoice	24-Aug	24	64	X					12:54	13:04	
7	5_9	III	Cyanobact	Nochoice	24-Aug	24	64			0:10	1:25		13:05	13:15	
8	5_9	III	Cyanobact	Nochoice	24-Aug	24	64		0:45		1:20		13:05	13:15	
9	5_9	III	Cyanobact	Nochoice	24-Aug	24	64		1:15				13:05	13:15	
10	5_9	IV	Cyanobact	Nochoice	24-Aug	24	63		0:20	2:15			13:17	13:27	
11	5_9	IV	Cyanobact	Nochoice	24-Aug	24	63		3:58				13:17	13:27	
12	5_9	IV	Cyanobact	Nochoice	24-Aug	24	63		8:00				13:17	13:27	

Figure 7 Pellets_w_cyanobacteria WT#1 trials, the first 24 flies

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	7_9	I	Cyanobact	Nochoice	06.sep	24	60		04:00				11:20	11:30	Sunny
2	7_9	I	Cyanobact	Nochoice	06.sep	24	60	X					11:20	11:30	
3	7_9	I	Cyanobact	Nochoice	06.sep	24	60	X					11:20	11:30	
4	7_9	II	Cyanobact	Nochoice	06.sep	24	60			00:40			11:32	11:42	
5	7_9	II	Cyanobact	Nochoice	06.sep	24	60				00:55		11:32	11:42	
6	7_9	II	Cyanobact	Nochoice	06.sep	24	60	X					11:32	11:42	
7	7_9	III	Cyanobact	Nochoice	06.sep	25	60		00:17	03:13			11:44	11:54	
8	7_9	III	Cyanobact	Nochoice	06.sep	25	60		00:18				11:44	11:54	
9	7_9	III	Cyanobact	Nochoice	06.sep	25	60	X					11:44	11:54	
10	7_9	IV	Cyanobact	Nochoice	06.sep	25	59		00:13		01:40		11:55	12:05	
11	7_9	IV	Cyanobact	Nochoice	06.sep	25	59			00:16	01:20		11:55	12:05	
12	7_9	IV	Cyanobact	Nochoice	06.sep	25	59		01:52		05:14		11:55	12:05	
1	7_9	I	Cyanobact	Nochoice	06.sep	25	59				02:05	**	12:14	12:24	
2	7_9	I	Cyanobact	Nochoice	06.sep	25	59		01:35				12:14	12:24	
3	7_9	I	Cyanobact	Nochoice	06.sep	25	59	X					12:14	12:24	
4	7_9	II	Cyanobact	Nochoice	06.sep	25	60			00:05	**		12:25	12:35	
5	7_9	II	Cyanobact	Nochoice	06.sep	25	60	X					12:25	12:35	
6	7_9	II	Cyanobact	Nochoice	06.sep	25	60	X					12:25	12:35	
7	7_9	III	Cyanobact	Nochoice	06.sep	25	59		01:26				12:36	12:46	
8	7_9	III	Cyanobact	Nochoice	06.sep	25	59	X					12:36	12:46	
9	7_9	III	Cyanobact	Nochoice	06.sep	25	59	X					12:36	12:46	
10	7_9	IV	Cyanobact	Nochoice	06.sep	25	60			00:48			12:47	12:57	
11	7_9	IV	Cyanobact	Nochoice	06.sep	25	60	X					12:47	12:57	
12	7_9	IV	Cyanobact	Nochoice	06.sep	25	60	X					12:47	12:57	

Figure 8 Pellets_w_cyanobacteria WT#1 trials, the last 24 flies

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	7_9	I	Pellets	Nochoice	26-Aug	23	71			0:07	1:47		12:10	12:20	cloudy
2	7_9	I	Pellets	Nochoice	26-Aug	23	71		00:01:00**	0:52	1:51		12:10	12:20	
3	7_9	I	Pellets	Nochoice	26-Aug	23	71				0:47		12:10	12:20	
4	7_9	II	Pellets	Nochoice	26-Aug	24	71		0:17	6:27			12:22	12:32	
5	7_9	II	Pellets	Nochoice	26-Aug	24	71		0:22				12:22	12:32	
6	7_9	II	Pellets	Nochoice	26-Aug	24	71		5:25				12:22	12:32	
7	7_9	III	Pellets	Nochoice	26-Aug	24	71		0:17	0:51	1:51	6:35	12:34	12:44	
8	7_9	III	Pellets	Nochoice	26-Aug	24	71				0:37		12:34	12:44	
9	7_9	III	Pellets	Nochoice	26-Aug	24	71				0:37		12:34	12:44	
10	7_9	IV	Pellets	Nochoice	26-Aug	24	71				0:33		12:46	12:56	
11	7_9	IV	Pellets	Nochoice	26-Aug	24	71			0:27	3:05		12:46	12:56	
12	7_9	IV	Pellets	Nochoice	26-Aug	24	71		2:24	3:10			12:46	12:56	
1	7_9	I	Pellets	Nochoice	26-Aug	24	71		0:20		9:27		12:58	13:08	
2	7_9	I	Pellets	Nochoice	26-Aug	24	71	X					12:58	13:08	
3	7_9	I	Pellets	Nochoice	26-Aug	24	71	X					12:58	13:08	
4	7_9	II	Pellets	Nochoice	26-Aug	24	71		0:07	0:42			13:09	13:19	
5	7_9	II	Pellets	Nochoice	26-Aug	24	71		6:09				13:09	13:19	
6	7_9	II	Pellets	Nochoice	26-Aug	24	71	X					13:09	13:19	
7	7_9	III	Pellets	Nochoice	26-Aug	24	70		0:17	1:27			13:21	13:31	
8	7_9	III	Pellets	Nochoice	26-Aug	24	70		0:21				13:21	13:31	
9	7_9	III	Pellets	Nochoice	26-Aug	24	70	X					13:21	13:31	
10	7_9	IV	Pellets	Nochoice	26-Aug	24	70		0:10	2:47			13:32	13:43	
11	7_9	IV	Pellets	Nochoice	26-Aug	24	70		0:20	3:07			13:32	13:43	
12	7_9	IV	Pellets	Nochoice	26-Aug	24	70		0:48	5:17			13:32	13:43	

Figure 9Pellets_without trials WT#1 trials, first 24 flies

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	7_9	I	Pellets	Nochoice	07.sep	23	64		01:17		09:47		10:45	10:55	Sunny
2	7_9	I	Pellets	Nochoice	07.sep	23	64		00:47		03:00		10:45	10:55	
3	7_9	I	Pellets	Nochoice	07.sep	23	64				02:17		10:45	10:55	
4	7_9	II	Pellets	Nochoice	07.sep	23	64		00:23	05:37			10:57	10:59	
5	7_9	II	Pellets	Nochoice	07.sep	23	64		04:47				10:57	10:59	
6	7_9	II	Pellets	Nochoice	07.sep	23	64	X					10:57	10:59	
7	7_9	III	Pellets	Nochoice	07.sep	23	64				00:16		11:09	11:19	
8	7_9	III	Pellets	Nochoice	07.sep	23	64				00:16		11:09	11:19	
9	7_9	III	Pellets	Nochoice	07.sep	23	64			03:47			11:09	11:19	
10	7_9	IV	Pellets	Nochoice	07.sep										
11	7_9	IV	Pellets	Nochoice	07.sep										
12	7_9	IV	Pellets	Nochoice	07.sep			Vial opened, flies escaped.							
1	7_9	I	Pellets	Nochoice	07.sep	23	63			00:18			11:44	11:54	
2	7_9	I	Pellets	Nochoice	07.sep	23	63		03:52				11:44	11:54	
3	7_9	I	Pellets	Nochoice	07.sep	23	63	X					11:44	11:54	
4	7_9	II	Pellets	Nochoice	07.sep	23	63				00:46		11:55	12:05	
5	7_9	II	Pellets	Nochoice	07.sep	23	63		08:40				11:55	12:05	
6	7_9	II	Pellets	Nochoice	07.sep	23	63	X					11:55	12:05	
7	7_9	III	Pellets	Nochoice	07.sep	24	63				01:09		12:06	12:16	
8	7_9	III	Pellets	Nochoice	07.sep	24	63				00:57		12:06	12:16	
9	7_9	III	Pellets	Nochoice	07.sep	24	63				00:57		12:06	12:16	
10	7_9	IV	Pellets	Nochoice	07.sep	24	63		00:18				12:17	12:27	
11	7_9	IV	Pellets	Nochoice	07.sep	24	63		00:12				12:17	12:27	
12	7_9	IV	Pellets	Nochoice	07.sep	24	63		01:45				12:17	12:27	

Figure 10Pellets_without trials WT#1 trials, last 24 flies

Test_numbe	Insect numb	Age_fly	Group	Treatment	Type_choi	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	1	5_8	I	Control	Nochoice	24-Aug	23	63		0:05**	0:52	2:37		10:24	10:34	cloudy
2	2	5_8	I	Control	Nochoice	24-Aug	23	63			0:12	1:52		10:24	10:34	
3	3	5_8	I	Control	Nochoice	24-Aug	23	63		3:25	3:40			10:24	10:34	
4	4	5_8	II	Control	Nochoice	24-Aug	23	63			0:12	1:14		10:37	10:47	
5	5	5_8	II	Control	Nochoice	24-Aug	23	63				0:27		10:37	10:47	
6	6	5_8	II	Control	Nochoice	24-Aug	23	63		2:32	5:05			10:37	10:47	
7	7	5_8	III	Control	Nochoice	24-Aug	24	63		0:22				10:49	10:59	
8	8	5_8	III	Control	Nochoice	24-Aug	24	63	X					10:49	10:59	
9	9	5_8	III	Control	Nochoice	24-Aug	24	63	X					10:49	10:59	
10	10	5_8	IV	Control	Nochoice	24-Aug	23	62				0:15		11:02		
11	11	5_8	IV	Control	Nochoice	24-Aug	23	62		0:27	1:10	4:35		11:02		
12	12	5_8	IV	Control	Nochoice	24-Aug	23	62						11:02		
			Flies can "intimidate" each other, push them, fight.													
1	1	7_9	I	Control	Nochoice	26-Aug	22	74			0:12	2:34		10:00	10:10	cloudy
2	2	7_9	I	Control	Nochoice	26-Aug	22	74			2:12			10:00	10:10	
3	3	7_9	I	Control	Nochoice	26-Aug	22	74		2:15				10:00	10:10	
4	4	7_9	II	Control	Nochoice	26-Aug	23	72				1:22		10:11	10:21	
5	5	7_9	II	Control	Nochoice	26-Aug	23	72				3:27		10:11	10:21	
6	6	7_9	II	Control	Nochoice	26-Aug	23	72	X					10:11	10:21	
7	7	7_9	III	Control	Nochoice	26-Aug	23	72			0:26	4:43		10:23	10:33	
8	8	7_9	III	Control	Nochoice	26-Aug	23	72		0:33	1:36			10:23	10:33	
9	9	7_9	III	Control	Nochoice	26-Aug	23	72	X					10:23	10:33	
10	10	7_9	IV	Control	Nochoice	26-Aug	23	72			3:45			10:34	10:44	
11	11	7_9	IV	Control	Nochoice	26-Aug	23	72			7:21			10:34	10:44	
12	12	7_9	IV	Control	Nochoice	26-Aug	23	72	X					10:34	10:44	

Figure 11Control trials WT#1, first 24 flies

Test_numbe	Insect numb	Age_fly	Group	Treatment	Type_choi	Date	T	H					Landing_onp	Starting_tim	Finishing_tir	Weather
1	1	6_9	I	Control	Nochoice	31.aug	22	66		00:05**		01:23		10:10	10:20	
2	2	6_9	I	Control	Nochoice	31.aug	22	66				00:33		10:10	10:20	
3	3	6_9	I	Control	Nochoice	31.aug	22	66	X					10:10	10:20	
4	4	6_9	II	Control	Nochoice	31.aug	22	65			00:28			10:22	10:32	
5	5	6_9	II	Control	Nochoice	31.aug	22	65			00:22			10:22	10:32	
6	6	6_9	II	Control	Nochoice	31.aug	22	65			00:10			10:22	10:32	
7	7	6_9	III	Control	Nochoice	31.aug	23	65		00:13		01:47		10:34	10:44	
8	8	6_9	III	Control	Nochoice	31.aug	23	65			00:21			10:34	10:44	
9	9	6_9	III	Control	Nochoice	31.aug	23	65			01:03			10:34	10:44	
10	10	6_9	IV	Control	Nochoice	31.aug	23	65		00:13				10:45	10:55	
11	11	6_9	IV	Control	Nochoice	31.aug	23	65			00:23			10:45	10:55	
12	12	6_9	IV	Control	Nochoice	31.aug	23	65		01:12		02:35		10:45	10:55	
1	1	7_9	I	Control	Nochoice	06.sep	24	63		00:33	01:05	01:35		10:00	10:10	cloudy
2	2	7_9	I	Control	Nochoice	06.sep	24	63	X					10:00	10:10	
3	3	7_9	I	Control	Nochoice	06.sep	24	63	X					10:00	10:10	
4	4	7_9	II	Control	Nochoice	06.sep	24	60				00:05**		10:11	10:21	
5	5	7_9	II	Control	Nochoice	06.sep	24	60		01:45		02:50		10:11	10:21	
6	6	7_9	II	Control	Nochoice	06.sep	24	60	X					10:11	10:21	
7	7	7_9	III	Control	Nochoice	06.sep	24	60			00:15			10:23	10:33	
8	8	7_9	III	Control	Nochoice	06.sep	24	60	X					10:23	10:33	
9	9	7_9	III	Control	Nochoice	06.sep	24	60	X					10:23	10:33	
10	10	7_9	IV	Control	Nochoice	06.sep	24	59				00:05**		10:34	10:44	
11	11	7_9	IV	Control	Nochoice	06.sep	24	59		00:35	01:37			10:34	10:44	
12	12	7_9	IV	Control	Nochoice	06.sep	24	59	X					10:34	10:44	

Figure 12Control trials WT#1, last 24 flies

Appendix 3

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	5_8	I	Control	Nochoice	20-Sep	24	63		0:07				10:00	10:10	Sunny
2	5_8	I	Control	Nochoice	20-Sep	24	63	X					10:00	10:10	
3	5_8	I	Control	Nochoice	20-Sep	24	63	X					10:00	10:10	
4	5_8	II	Control	Nochoice	20-Sep	24	61		0:45	2:07			10:12	10:22	
5	5_8	II	Control	Nochoice	20-Sep	24	61		7:11				10:12	10:22	
6	5_8	II	Control	Nochoice	20-Sep	24	61	X					10:12	10:22	
7	5_8	III	Control	Nochoice	20-Sep	24	62	X					10:23	10:33	
8	5_8	III	Control	Nochoice	20-Sep	24	62	X					10:23	10:33	
9	5_8	III	Control	Nochoice	20-Sep	24	62	X					10:23	10:33	
10	5_8	IV	Control	Nochoice	20-Sep	24	61			0:15			10:33	10:43	
11	5_8	IV	Control	Nochoice	20-Sep	24	61		0:10	1:56			10:33	10:43	
12	5_8	IV	Control	Nochoice	20-Sep	24	61		0:50				10:33	10:43	
1	6_9	I	Control	Nochoice	21-Sep	23	62			0:13			9:50	10:00	
2	6_9	I	Control	Nochoice	21-Sep	23	62		0:07				9:50	10:00	
3	6_9	I	Control	Nochoice	21-Sep	23	62		2:03				9:50	10:00	
4	6_9	II	Control	Nochoice	21-Sep	23	61		0:17	2:35			10:01	10:11	
5	6_9	II	Control	Nochoice	21-Sep	23	61		0:31				10:01	10:11	
6	6_9	II	Control	Nochoice	21-Sep	23	61	X					10:01	10:11	
7	6_9	III	Control	Nochoice	21-Sep	23	62		0:10	1:08			10:12	10:22	
8	6_9	III	Control	Nochoice	21-Sep	23	62		1:08				10:12	10:22	
9	6_9	III	Control	Nochoice	21-Sep	23	62	X					10:12	10:22	
10	6_9	IV	Control	Nochoice	21-Sep	23	61		0:17	3:21			10:22	10:32	
11	6_9	IV	Control	Nochoice	21-Sep	23	61				0:20		10:22	10:32	
12	6_9	IV	Control	Nochoice	21-Sep	23	61	X					10:22	10:32	

Figure 13 Control trials WT#2. First 24 flies

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	5_8	I	Control	Nochoice	4-Oct	23	58				0:23		9:57	10:07	Sunny/frost i
2	5_8	I	Control	Nochoice	4-Oct	23	58				0:33		9:57	10:07	
3	5_8	I	Control	Nochoice	4-Oct	23	58			0:45	1:37		9:57	10:07	
4	5_8	II	Control	Nochoice	4-Oct	23	56		0:12		0:53		10:10	10:20	
5	5_8	II	Control	Nochoice	4-Oct	23	56	X					10:10	10:20	
6	5_8	II	Control	Nochoice	4-Oct	23	56	X					10:10	10:20	
7	5_8	III	Control	Nochoice	4-Oct	23	57					0:40	10:22	10:32	
8	5_8	III	Control	Nochoice	4-Oct	23	57	X					10:22	10:32	
9	5_8	III	Control	Nochoice	4-Oct	23	57	X					10:22	10:32	
10	5_8	IV	Control	Nochoice	4-Oct	23	56		2:30				10:34	10:44	
11	5_8	IV	Control	Nochoice	4-Oct	23	56	X					10:34	10:44	
12	5_8	IV	Control	Nochoice	4-Oct	23	56	X					10:34	10:44	

The size of these flies was considerable larger than previous tests, food related?

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	6_9	I	Control	Nochoice	6-Oct	23	57			1:27	2:28		9:57	10:07	Sunny
2	6_9	I	Control	Nochoice	6-Oct	23	57	X					9:57	10:07	
3	6_9	I	Control	Nochoice	6-Oct	23	57	X					9:57	10:07	
4	6_9	II	Control	Nochoice	6-Oct	23	58		0:29		5:15		10:08	10:18	
5	6_9	II	Control	Nochoice	6-Oct	23	58			0:42			10:08	10:18	
6	6_9	II	Control	Nochoice	6-Oct	23	58		2:34				10:08	10:18	
7	6_9	III	Control	Nochoice	6-Oct	23	56		0:27				10:19	10:29	
8	6_9	III	Control	Nochoice	6-Oct	23	56			0:44			10:19	10:29	
9	6_9	III	Control	Nochoice	6-Oct	23	56			2:56			10:19	10:29	
10	6_9	IV	Control	Nochoice	6-Oct	23	57				0:17		10:31	10:41	
11	6_9	IV	Control	Nochoice	6-Oct	23	57			0:12			10:31	10:41	
12	6_9	IV	Control	Nochoice	6-Oct	23	57	X					10:31	10:41	

Figure 14Control trials WT#2. Last 24 flies

Insect nur	Age_fly	Group	Treatmen	Type_choi	Date	T	H	No_respo	Searching_5(	Searching_10	Passed_150	Landing_c	Starting_t	Finishing_	Weather
1	5_8	I	Cyanobact	Nochoice	20-Sep	24	60		0:39		7:46		10:44	10:54	Sunny
2	5_8	I	Cyanobact	Nochoice	20-Sep	24	60		1:28				10:44	10:54	
3	5_8	I	Cyanobact	Nochoice	20-Sep	24	60	X					10:44	10:54	
4	5_8	II	Cyanobact	Nochoice	20-Sep	24	61			0:14			10:57	11:07	
5	5_8	II	Cyanobact	Nochoice	20-Sep	24	61	X					10:57	11:07	
6	5_8	II	Cyanobact	Nochoice	20-Sep	24	61	X					10:57	11:07	
7	5_8	III	Cyanobact	Nochoice	20-Sep	24	60				8:09		11:07	11:17	
8	5_8	III	Cyanobact	Nochoice	20-Sep	24	60	X					11:07	11:17	
9	5_8	III	Cyanobact	Nochoice	20-Sep	24	60	X					11:07	11:17	
10	5_8	IV	Cyanobact	Nochoice	20-Sep	24	60		1:29				11:23	11:33	
11	5_8	IV	Cyanobact	Nochoice	20-Sep	24	60			5:30			11:23	11:33	
12	5_8	IV	Cyanobact	Nochoice	20-Sep	24	60	X					11:23	11:33	
1	5_8	I	Cyanobact	Nochoice	4-Oct	23	57		0:27	1:12	3:45		10:46	10:56	
2	5_8	I	Cyanobact	Nochoice	4-Oct	23	57		1:17	1:22	4:19		10:46	10:56	
3	5_8	I	Cyanobact	Nochoice	4-Oct	23	57	X					10:46	10:56	
4	5_8	II	Cyanobact	Nochoice	4-Oct	24	56			1:51			10:59	11:09	
5	5_8	II	Cyanobact	Nochoice	4-Oct	24	56		4:20				10:59	11:09	
6	5_8	II	Cyanobact	Nochoice	4-Oct	24	56	X					10:59	11:09	
7	5_8	III	Cyanobact	Nochoice	4-Oct	24	56		0:33		1:24		11:12	11:22	
8	5_8	III	Cyanobact	Nochoice	4-Oct	24	56		0:27	3:26	4:27		11:12	11:22	
9	5_8	III	Cyanobact	Nochoice	4-Oct	24	56	X					11:12	11:22	
10	5_8	IV	Cyanobact	Nochoice	4-Oct	24	56		0:41	7:37			11:23		
11	5_8	IV	Cyanobact	Nochoice	4-Oct	24	56		1:23	4:56	5:03		11:23		
12	5_8	IV	Cyanobact	Nochoice	4-Oct	24	56			1:35			11:23		

Figure 15Pellets_w_cyanobacteria trials WT#2. First 24 flies

Insect nur	Age_fly	Group	Treatmen	Type_choi	Date	T	H	No_respo	Searching_5(	Searching_10	Passed_150	Landing_c	Starting_t	Finishing_	Weather
1	6_9	I	Cyanobact	Nochoice	19-Oct	24	57		0:19				10:49	10:59	
2	6_9	I	Cyanobact	Nochoice	19-Oct	24	57		7:45				10:49	10:59	
3	6_9	I	Cyanobact	Nochoice	19-Oct	24	57	X					10:49	10:59	
4	6_9	II	Cyanobact	Nochoice	19-Oct	24	57			2:14			11:02	10:12	
5	6_9	II	Cyanobact	Nochoice	19-Oct	24	57	X					11:02	10:12	
6	6_9	II	Cyanobact	Nochoice	19-Oct	24	57	X					11:02	10:12	
7	6_9	III	Cyanobact	Nochoice	19-Oct	24	57		0:10				11:19	11:29	
8	6_9	III	Cyanobact	Nochoice	19-Oct	24	57		0:12	7:29			11:19	11:29	
9	6_9	III	Cyanobact	Nochoice	19-Oct	24	57				0:19		11:19	11:29	
10	6_9	IV	Cyanobact	Nochoice	19-Oct	24	57		0:26				11:31	11:41	
11	6_9	IV	Cyanobact	Nochoice	19-Oct	24	57		1:09	1:50			11:31	11:41	
12	6_9	IV	Cyanobact	Nochoice	19-Oct	24	57	X					11:31	11:41	
1	6_9	I	Cyanobact	Nochoice	19-Oct	24	58		0:20				11:47	11:57	
2	6_9	I	Cyanobact	Nochoice	19-Oct	24	58				0:16		11:47	11:57	
3	6_9	I	Cyanobact	Nochoice	19-Oct	24	58			0:22	1:23		11:47	11:57	
4	6_9	II	Cyanobact	Nochoice	19-Oct	24	56			0:15	3:28		11:58	12:08	
5	6_9	II	Cyanobact	Nochoice	19-Oct	24	56				2:50		11:58	12:08	
6	6_9	II	Cyanobact	Nochoice	19-Oct	24	56	X					11:58	12:08	
7	6_9	III	Cyanobact	Nochoice	19-Oct	24	58		0:33				12:10	12:20	
8	6_9	III	Cyanobact	Nochoice	19-Oct	24	58	X					12:10	12:20	
9	6_9	III	Cyanobact	Nochoice	19-Oct	24	58	X					12:10	12:20	
10	6_9	IV	Cyanobact	Nochoice	19-Oct	24	57		0:47				12:22	12:32	
11	6_9	IV	Cyanobact	Nochoice	19-Oct	24	57		2:45				12:22	12:32	
12	6_9	IV	Cyanobact	Nochoice	19-Oct	24	57	X					12:22	12:32	

Figure 16Pellets_w_cyanobacteria trials WT#2. Last 24 flies

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	6_9	I	Pellets	No_choice	21-Sep	23	62			1:13			10:34	10:44	
2	6_9	I	Pellets	No_choice	21-Sep	23	62	X					10:34	10:44	
3	6_9	I	Pellets	No_choice	21-Sep	23	62	X					10:34	10:44	
4	6_9	II	Pellets	No_choice	21-Sep	23	61				0:07		10:48	10:58	
5	6_9	II	Pellets	No_choice	21-Sep	23	61		0:21	7:02			10:48	10:58	
6	6_9	II	Pellets	No_choice	21-Sep	23	61	X					10:48	10:58	
7	6_9	III	Pellets	No_choice	21-Sep	24	61		2:38	2:43			11:00	11:10	
8	6_9	III	Pellets	No_choice	21-Sep	24	61	X					11:00	11:10	
9	6_9	III	Pellets	No_choice	21-Sep	24	61	X					11:00	11:10	
10	6_9	IV	Pellets	No_choice	21-Sep	24	60			3:15			11:11	11:21	
11	6_9	IV	Pellets	No_choice	21-Sep	24	60	X					11:11	11:21	
12	6_9	IV	Pellets	No_choice	21-Sep	24	60	X					11:11	11:21	
1	6_9	I	Pellets	No_choice	6-Oct	24	57				1:47		10:42	10:52	
2	6_9	I	Pellets	No_choice	6-Oct	24	57		1:51	1:57			10:42	10:52	
3	6_9	I	Pellets	No_choice	6-Oct	24	57				6:39		10:42	10:52	
4	6_9	II	Pellets	No_choice	6-Oct	24	57				0:22		10:57	11:07	
5	6_9	II	Pellets	No_choice	6-Oct	24	57			0:28			10:57	11:07	
6	6_9	II	Pellets	No_choice	6-Oct	24	57	X					10:57	11:07	
7	6_9	III	Pellets	No_choice	6-Oct	24	57	X					11:09	11:19	
8	6_9	III	Pellets	No_choice	6-Oct	24	57	X					11:09	11:19	
9	6_9	III	Pellets	No_choice	6-Oct	24	57	X					11:09	11:19	
10	6_9	IV	Pellets	No_choice	6-Oct	24	56				0:58		11:22	11:32	
11	6_9	IV	Pellets	No_choice	6-Oct	24	56		0:47				11:22	11:32	
12	6_9	IV	Pellets	No_choice	6-Oct	24	56	X					11:22	11:32	

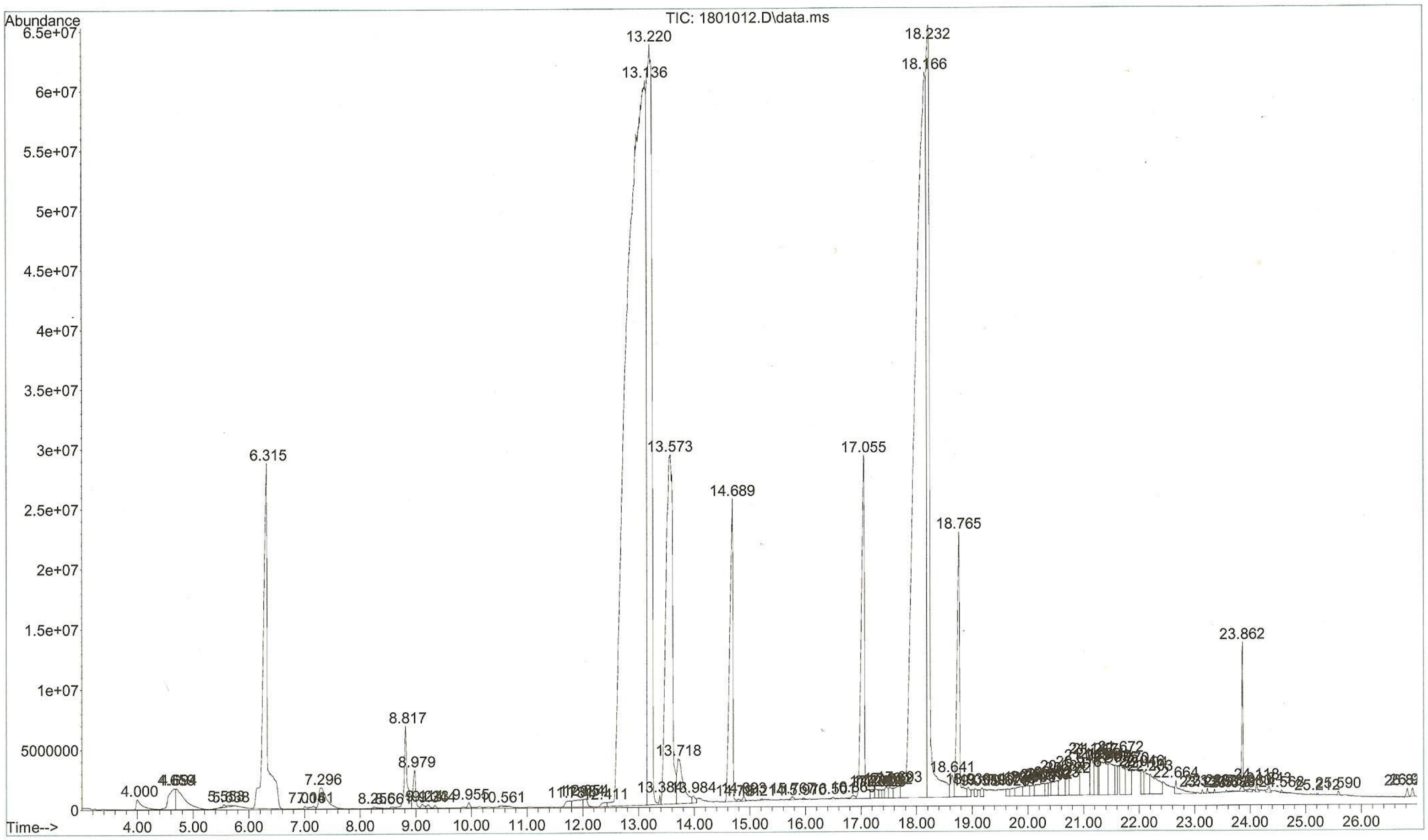
Figure 17Pellets_without trials WT#2. First 24 flies

Insect numb	Age_fly	Group	Treatment	Type_choice	Date	T	H	No_respond	Searching_5(	Searching_1(	Passed_150	Landing_onp	Starting_tim	Finishing_tir	Weather
1	6_16	I	Pellets	No_choice	11-Oct	23	57		0:21				10:50	11:00	
2	6_16	I	Pellets	No_choice	11-Oct	23	57	X					10:50	11:00	
3	6_16	I	Pellets	No_choice	11-Oct	23	57	X					10:50	11:00	
4	6_16	II	Pellets	No_choice	11-Oct	24	57		0:17				11:01	11:11	
5	6_16	II	Pellets	No_choice	11-Oct	24	57	X					11:01	11:11	
6	6_16	II	Pellets	No_choice	11-Oct	24	57	X					11:01	11:11	
7	6_16	III	Pellets	No_choice	11-Oct	24	57		0:26				11:12	11:22	
8	6_16	III	Pellets	No_choice	11-Oct	24	57			3:56			11:12	11:22	
9	6_16	III	Pellets	No_choice	11-Oct	24	57	X					11:12	11:22	
10	6_16	IV	Pellets	No_choice	11-Oct	24	57			0:12			11:24	11:34	
11	6_16	IV	Pellets	No_choice	11-Oct	24	57	X					11:24	11:34	
12	6_16	IV	Pellets	No_choice	11-Oct	24	57	X					11:24	11:34	
1	7_10	I	Pellets	No_choice	20-Oct	23	58		1:03	7:49			10:53	11:03	
2	7_10	I	Pellets	No_choice	20-Oct	23	58	X					10:53	11:03	
3	7_10	I	Pellets	No_choice	20-Oct	23	58	X					10:53	11:03	
4	7_10	II	Pellets	No_choice	20-Oct	24	57				0:05		11:07	11:17	
5	7_10	II	Pellets	No_choice	20-Oct	24	57	X					11:07	11:17	
6	7_10	II	Pellets	No_choice	20-Oct	24	57	X					11:07	11:17	
7	7_10	III	Pellets	No_choice	20-Oct	24	57		1:04	4:21			11:18	11:28	
8	7_10	III	Pellets	No_choice	20-Oct	24	57		1:55				11:18	11:28	
9	7_10	III	Pellets	No_choice	20-Oct	24	57		2:36				11:18	11:28	
10	7_10	IV	Pellets	No_choice	20-Oct	24	57				2:16		11:30	11:40	
11	7_10	IV	Pellets	No_choice	20-Oct	24	57		8:05				11:30	11:40	
12	7_10	IV	Pellets	No_choice	20-Oct	24	57	X					11:30	11:40	

Figure 18Pellets_without trials WT#2. Last 24 flies

Appendix 4

File: C:\msdchem\1\DATA\Peter\Peter161115\1801012.D
Operator: Peter
Date Acquired: 15 Nov 2016 22:25
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1426
Misc Info: Garlic
Vial Number : 18

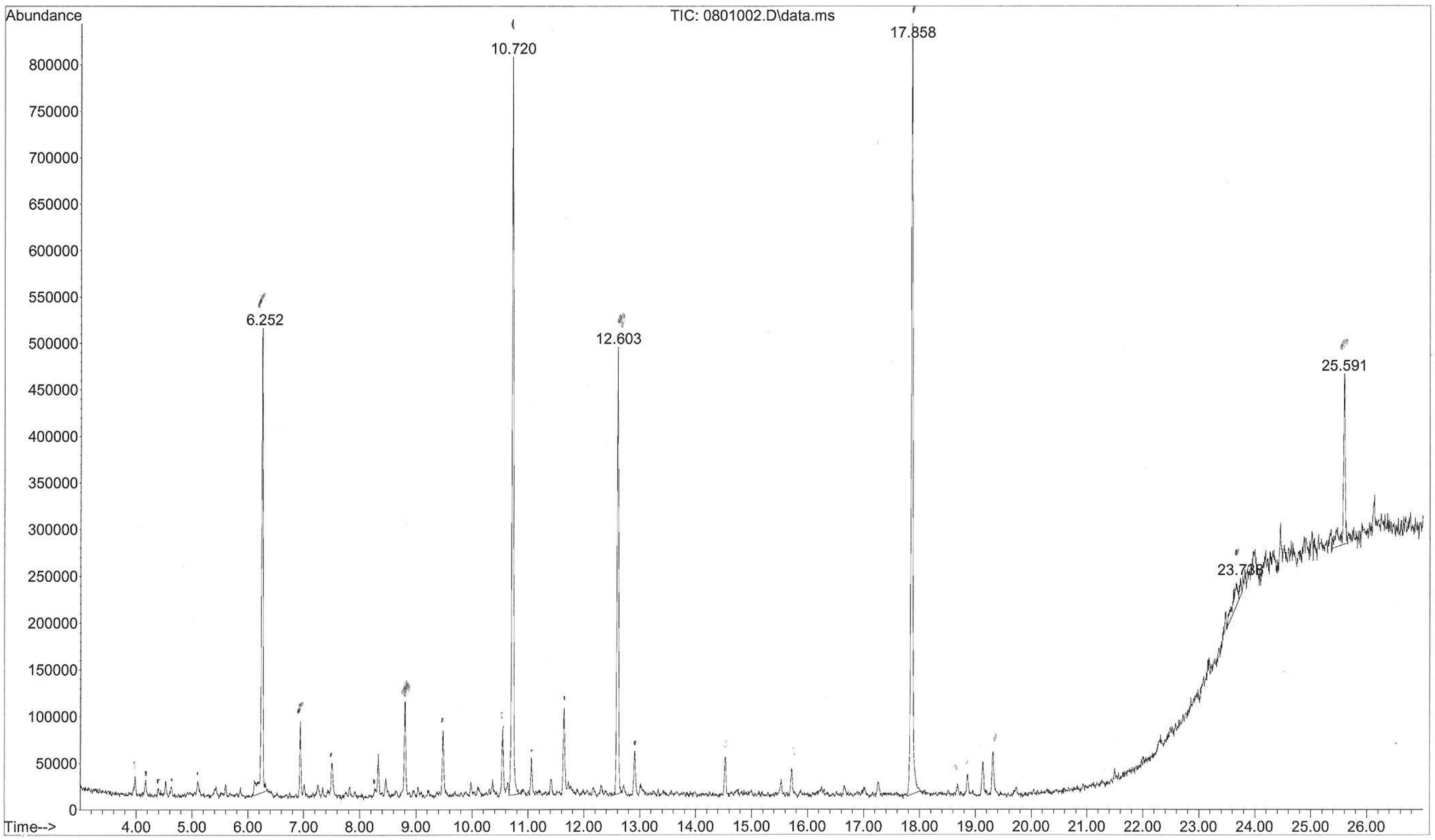


MSD Deconvolution Report
Sample Name: 1426
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1801012.D
Date/Time: 09:25:37 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9978	556672	Octametylcylcotetrasiloxane		78		91	1
4.6147	112403	Dodecane		70	-149.7	88	2
5.6377	1120214	Undecane		80	9.4	87	4
7.2881	138863	s-Limonene		94	2.4	90	4
8.9802	629629	Pentadecane (ISTD)		70	-220.4	86	1
9.3433	629505	Tridecane		81	-2.1	81	53
10.557	112061	Heptylacetate RT-LOCK/ISTD	0.5				
10.6929	3658808	Dimethyl trisulfide		90	-6.4	91	1
13.2769	112312	Decanal		74	10.4	83	1
13.9861	78706	Linalool		86	-1.4	87	1
16.5043	98555	a-Terpinol		85	-7.9	75	3
18.8428	91576	Naphthalene, 2-methyl-		73		93	1
18.9297	90051	Guaiacol (Phenol, 2-methoxy-)		94	-6.8	84	2
19.7329	60128	Phenylethyl Alcohol		76	-11.2	68	2
7.299		s-Limonene	7.19				

File: C:\msdchem\1\DATA\Peter\Peter161115\0801002.D
Operator: Peter
Date Acquired: 15 Nov 2016 16:25
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1416
Misc Info: Pellets m CB
Vial Number : 8

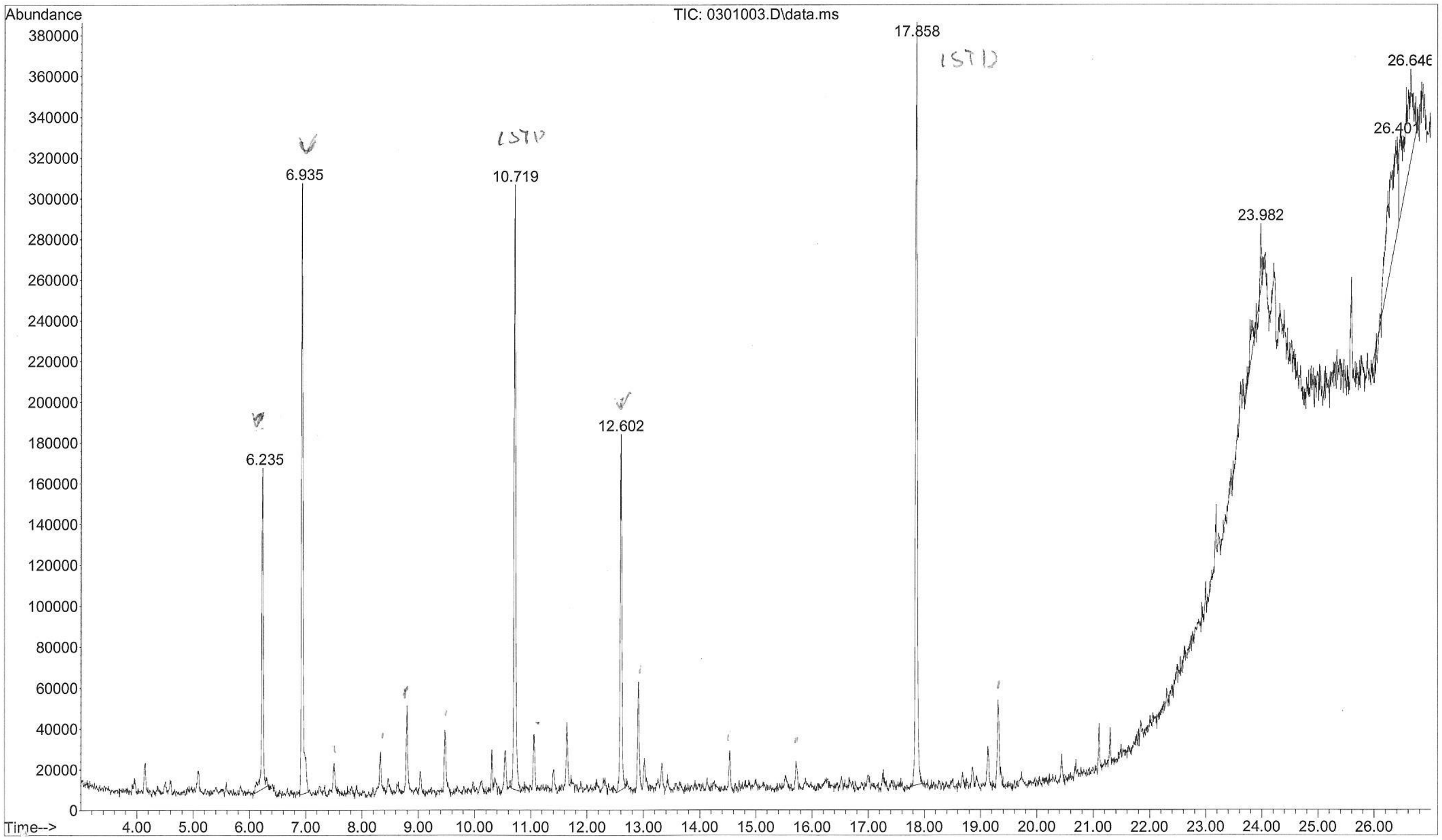


MSD Deconvolution Report
Sample Name: 1416
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0801002.D
Date/Time: 09:18:46 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.1712	7785264	Alfa-Pinene		86	2.0	86	7
4.3997	108883	Toluene		76	6.5	85	4
4.6336	589388	3-Hexanon		72	5.4	82	1
5.1030	591786	2-Hexanone		81	4.1	80	1
7.5061	112403	Dodecane		86	5.5	85	1
8.3310	100425	Styrene		95	-4.0	89	2
9.4779	629505	Tridecane		92	4.8	87	1
10.7182	112061	Heptylacetat (RT LOCK)	0.5	98	-0.1	94	1
11.0578	124196	Nonanal (Pelargonaldehyd)		90	-3.6	86	1
11.7217	1014604	1,3-Di-tert-Butylbenzen		72	-1.5	74	5
12.9097	104767	1-Hexanol, 2-ethyl-		90	-4.6	88	1
17.8581	1731813	Undecylacetate (ISTD)		99	-2.6		
17.8581	112425	1-Undecanol				93	1
23.4727	0201002N1006	Unknown methylester		74	-2.2		
23.4727	111068	Hexadecanoic acid, butyl ester				51	1

File: C:\msdchem\1\DATA\Peter\Peter161115\0301003.D
Operator: Peter
Date Acquired: 15 Nov 2016 11:08
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1411
Misc Info: Pellets m CB
Vial Number : 3



MSD Deconvolution Report
Sample Name: 1411
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0301003.D
Date/Time: 09:15:04 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

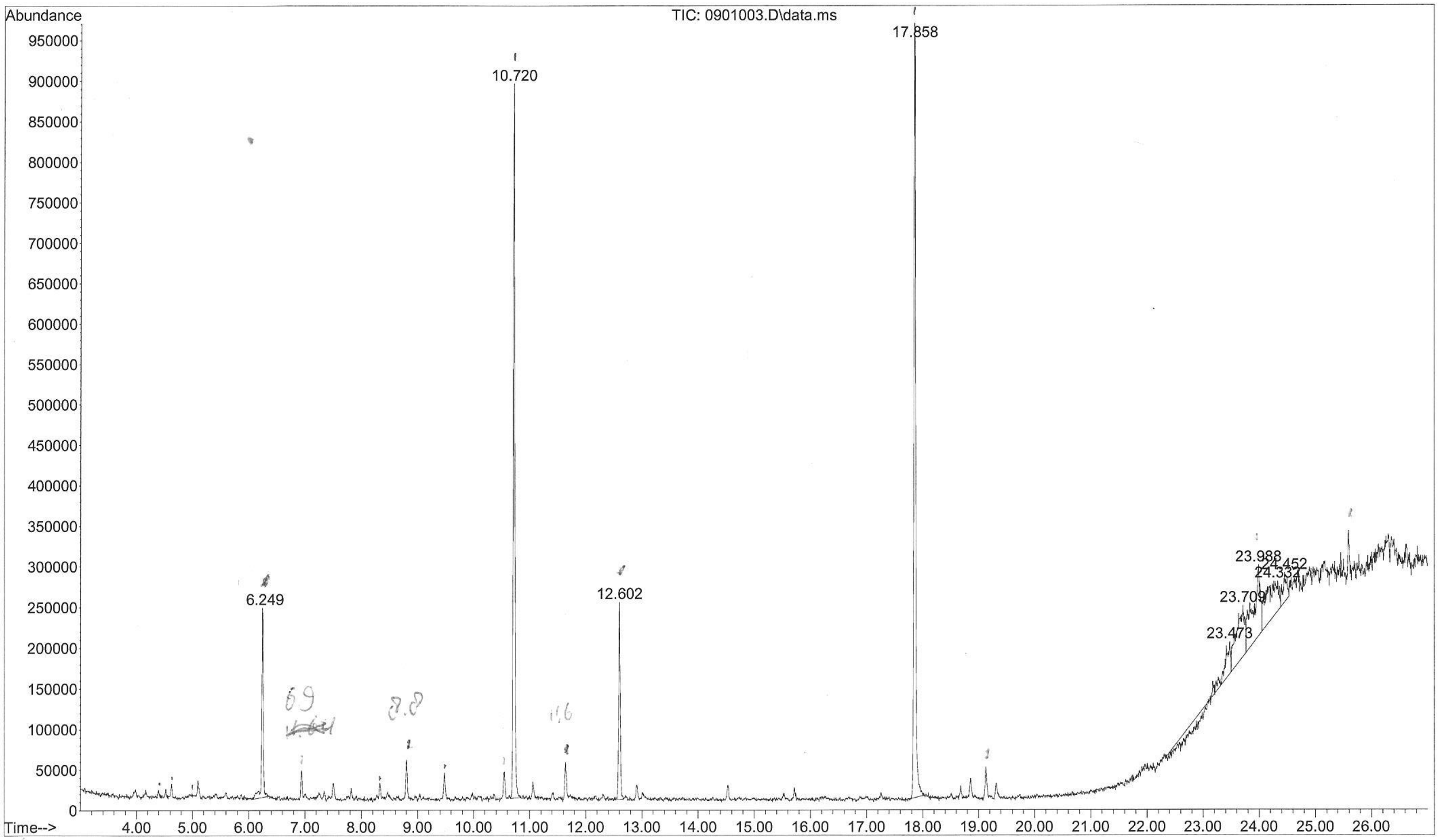
			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.1485	7785264	Alfa-Pinene		73	0.7	82	3
8.3271	100425	Styrene		91	-4.2	92	1
9.4740	629505	Tridecane		90	4.6	86	1
10.7184	112061	Heptylacetat (RT LOCK)	0.5	99	-0.1	95	1
11.0539	124196	Nonanal (Pelargonaldehyd)		80	-3.8	87	1
12.9118	104767	1-Hexanol, 2-ethyl-		89	-4.5	91	1
13.3272	100527	Benzaldehyde		94	-7.8	90	1
17.8560	1731813	Undecylacetate (ISTD)		99	-2.8		
17.8560	112425	1-Undecanol				92	1

6.235 Allylsulfide 592-88-1

6.935 Dimethylsiloxane pentamer 541-02-6

12.602 Allyldisulfide 2179-57-9

File: C:\msdchem\1\DATA\Peter\Peter161115\0901003.D
Operator: Peter
Date Acquired: 15 Nov 2016 17:01
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1417
Misc Info: Pellets m CB
Vial Number : 9

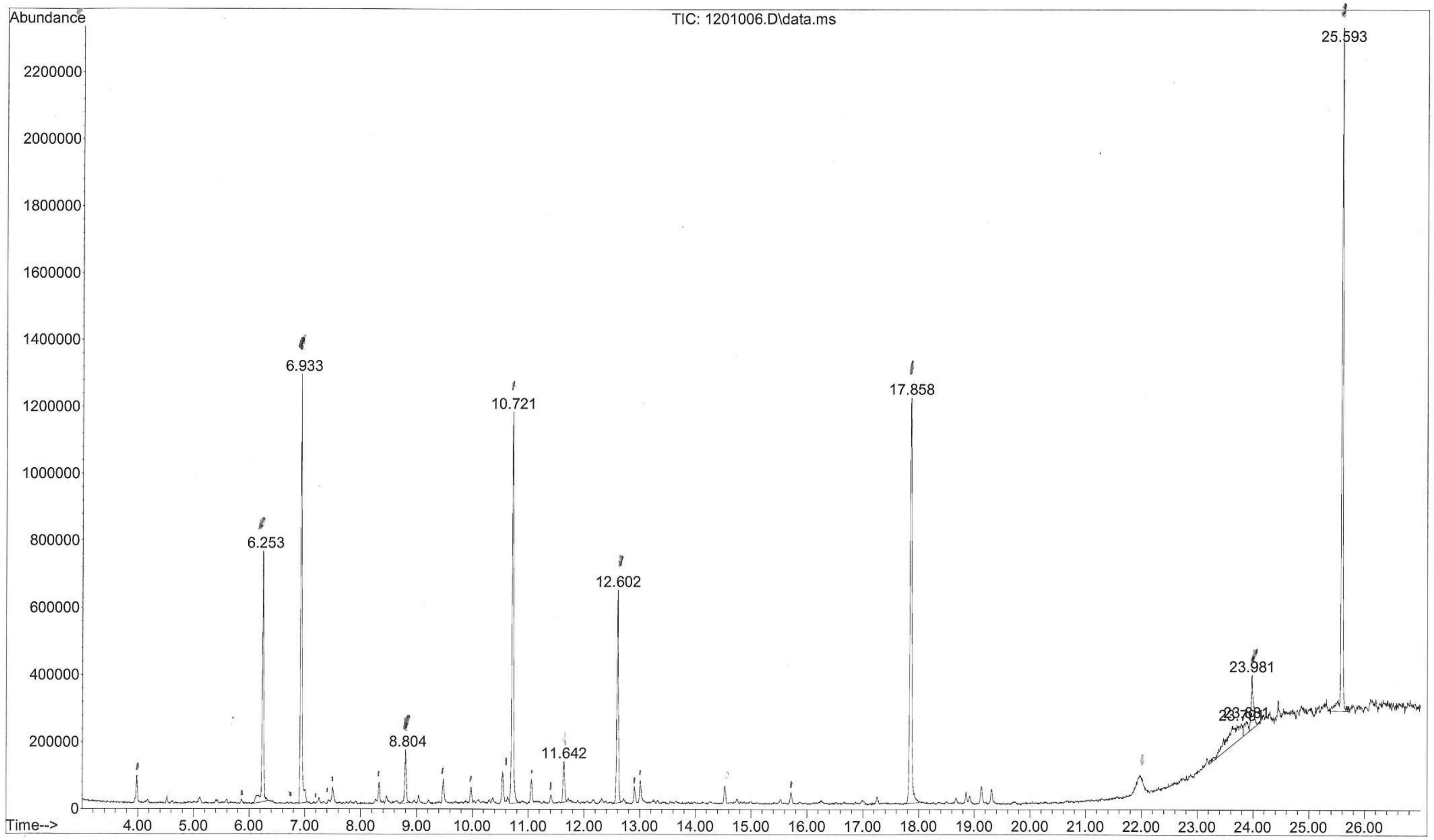


MSD Deconvolution Report
Sample Name: 1417
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0901003.D
Date/Time: 09:19:19 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.3965	108883	Toluene		78	6.3	83	1
4.6291	589388	3-Hexanon		89	5.1	84	1
5.0986	591786	2-Hexanone		88	3.9	89	1
8.3313	100425	Styrene		95	-4.0	89	1
9.4817	629505	Tridecane		82	5.0	87	1
10.7196	112061	Heptylacetat (RT LOCK)	0.5	99	-0.1	93	1
17.8589	1731813	Undecylacetate (ISTD)		100	-2.6		
17.8589	112425	1-Undecanol				94	1

File: C:\msdchem\1\DATA\Peter\Peter161115\1201006.D
Operator: Peter
Date Acquired: 15 Nov 2016 18:49
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1420
Misc Info: Pellets m CB
Vial Number : 12



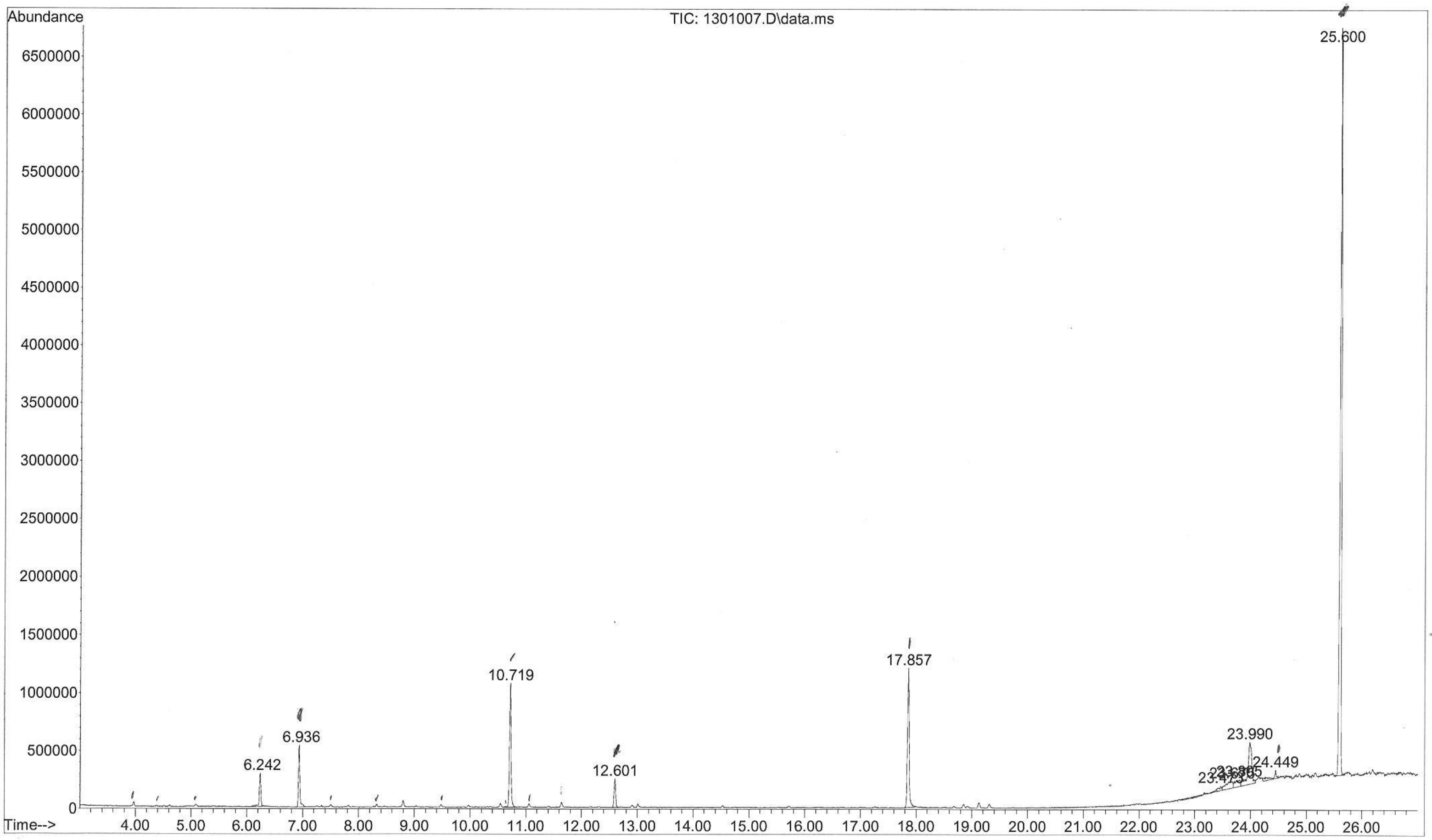
MSD Deconvolution Report
Sample Name: 1420
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1201006.D
Date/Time: 09:21:04 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9529	124185	Decane		76	11.1	74	10
3.9828	556672	Octametylcylcotetrasiloxane		75		91	1
5.8706	106423	p-Xylene		78	-6.6	79	4
6.7525	98828	Cumene		74	-0.2	83	1
7.2549	138863	s-Limonene		75	0.7	77	6
7.4276	103651	Propylbenzene		75	-2.5	75	1
7.5046	112403	Dodecane		85	5.4	84	1
8.3295	100425	Styrene		97	-4.1	90	1
9.4799	629505	Tridecane		89	4.9	80	33
9.9770	110930	5-Hepten-2-one, 6-methyl-		88	-3.4	88	1
10.6879	3658808	Dimethyl trisulfide		79	-6.7	80	2
10.7202	112061	Heptylacetat (RT LOCK)	0.5	98	-0.0	94	1
11.0610	124196	Nonanal (Pelargonaldehyd)		94	-3.4	89	1
11.4106	629594	Tetradecane		73	4.8	77	5
12.9071	104767	1-Hexanol, 2-ethyl-		88	-4.8	89	1
13.0105	112312	Decanal		91	-4.2	91	1
15.7179	3853836	alfa-Himachalene*		70	-2.9	71	52
17.8578	1731813	Undecylacetate (ISTD)		100	-2.6		
17.8578	112425	1-Undecanol				93	1
8.331		Styrene	0.01				

2,4,4,6,6,8,8 Heptamethyl-1-nonene 11.64 15796-04-0
91%

```
File:           C:\msdchem\1\DATA\Peter\Peter161115\1301007.D
Operator:       Peter
Date Acquired:  15 Nov 2016  19:25
Instrument:     GC_MS_3
Method File:    SORBUS30_PRECOLUMN.M
Sample Name:    1421
Misc Info:      Pellets m CB
Vial Number   : 13
```



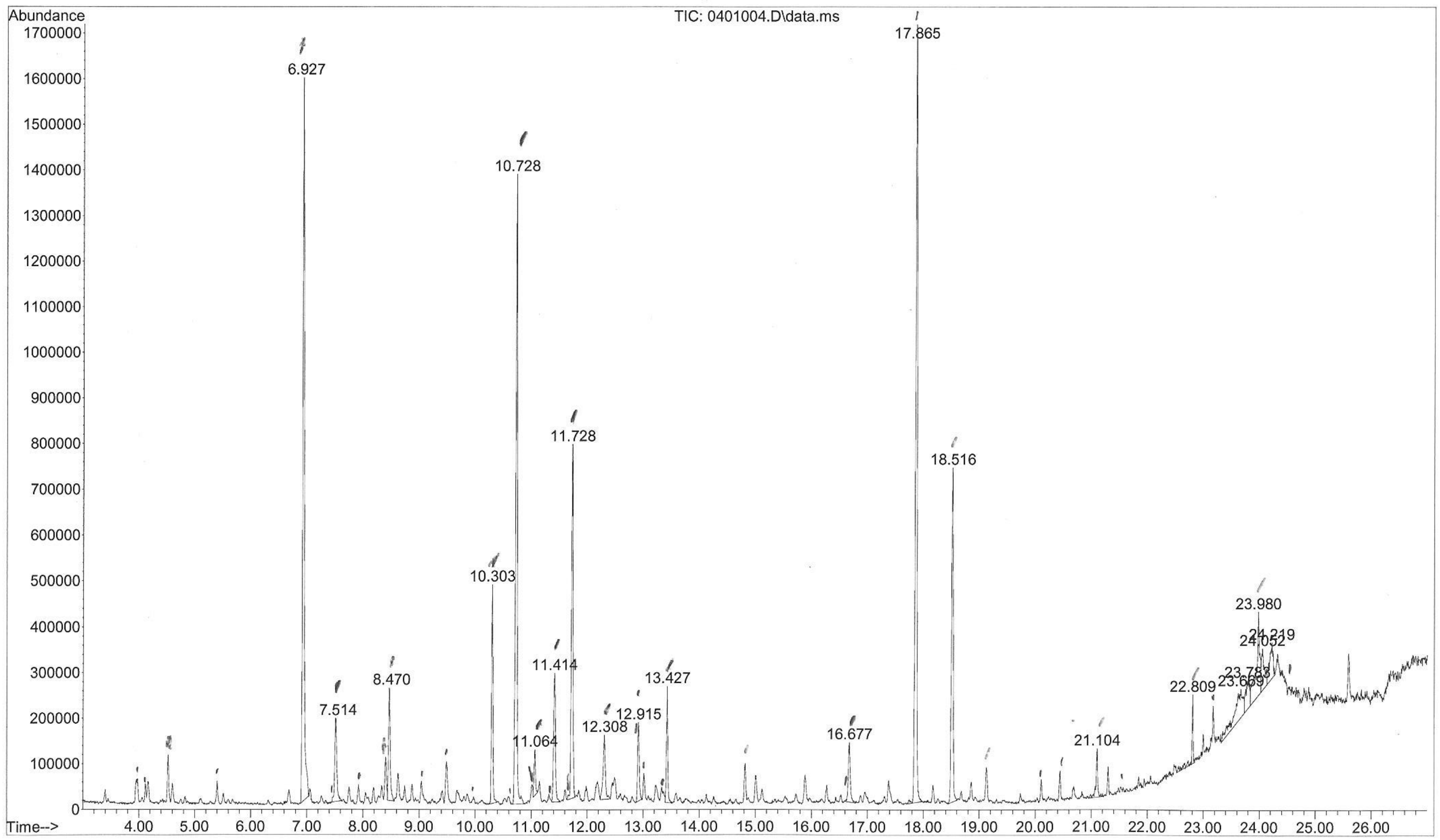
MSD Deconvolution Report
Sample Name: 1421
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1301007.D
Date/Time: 09:21:53 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9717	556672	Octametylcylcotetrasiloxane		73		89	1
4.3853	108883	Toluene		77	5.7	84	4
5.0863	591786	2-Hexanone		88	3.1	84	1
7.5040	112403	Dodecane		74	5.4	80	1
8.3243	100425	Styrene		91	-4.4	82	93
9.4776	629505	Tridecane		80	4.8	80	9
10.6815	3658808	Dimethyl trisulfide		73	-7.0	74	1
10.7185	112061	Heptylacetat (RT LOCK)	0.5	98	-0.1	94	1
11.0587	124196	Nonanal (Pelargonaldehyd)		80	-3.5	88	1
17.8566	1731813	Undecylacetate (ISTD)		100	-2.7		
17.8566	112425	1-Undecanol				94	1
24.4483	123955	Stearinsyre-n-butylester		72	-0.7	71	1

6.936 Se pellets u CB
6.242 *
26.000 *

File: C:\msdchem\1\DATA\Peter\Peter161115\0401004.D
Operator: Peter
Date Acquired: 15 Nov 2016 11:44
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1412
Misc Info: Cyanobacteria
Vial Number : 4

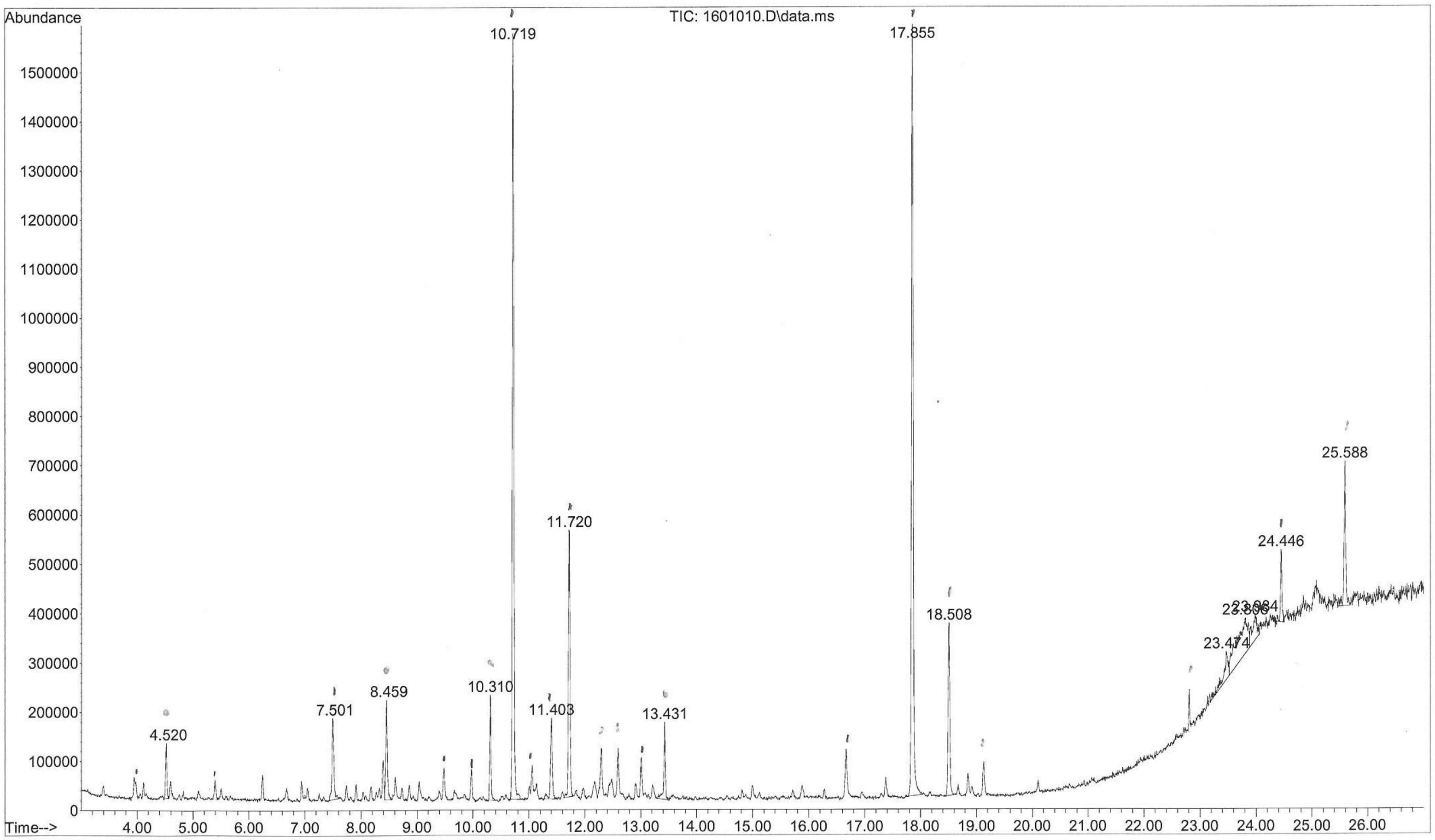


MSD Deconvolution Report
Sample Name: 1412
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0401004.D
Date/Time: 09:16:18 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

R.T.	Cas #	Compound Name	Agilent ChemStation Amount (ng)	AMDIS Match	AMDIS R.T. Diff sec.	NIST Reverse Match	NIST Hit Num.
3.9527	124185	Decane		90	11.1	90	1
4.1683	7785264	Alfa-Pinene		94	1.9	88	2
5.4057	1120214	Undecane		81	-3.0	82	4
7.5132	112403	Dodecane		94	5.8	89	1
7.9116	3777693	Furan, 2-pentyl-		78	-2.1	77	1
9.0420	124130	Octanal		88	-2.3	88	1
9.4927	629505	Tridecane		85	5.6	85	15
10.7283	112061	Heptylacetat (RT LOCK)	0.5	97	0.4	93	1
11.0626	124196	Nonanal (Pelargonaldehyd)		91	-3.3	91	1
11.4116	629594	Tetradecane		98	4.9	94	1
11.7259	1014604	1,3-Di-tert-Butylbenzen		96	-1.2	88	1
12.9140	104767	1-Hexanol, 2-ethyl-		94	-4.4	92	1
13.0168	112312	Decanal		87	-3.9	86	1
13.3258	100527	Benzaldehyde		96	-7.8	94	1
15.0045	544763	Hexadecane		88	3.5	81	1
16.6737	629787	Heptadecane		94	3.4	89	1
17.8646	1731813	Undecylacetate (ISTD)		99	-2.2		
17.8646	112425	1-Undecanol				93	1
20.1079	79776	(E)-beta-Ionone*		81	-11.2	80	2
20.2319	95169	Benzothiazole		70	-9.6	68	14
20.4346	112538	1-Dodecanol		73		89	4
21.4845	121982	Methyl-p-anisate		73	-8.5	84	1
23.1714	A71IYV~1N1 002	Phthalic acid, cyclobutyl ethyl ester		72			
23.1714	84662	Diethyl Phthalate				88	1

File: C:\msdchem\1\DATA\Peter\Peter161115\1601010.D
Operator: Peter
Date Acquired: 15 Nov 2016 21:13
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1424
Misc Info: Cyanobacteria traces of garlic
Vial Number : 16

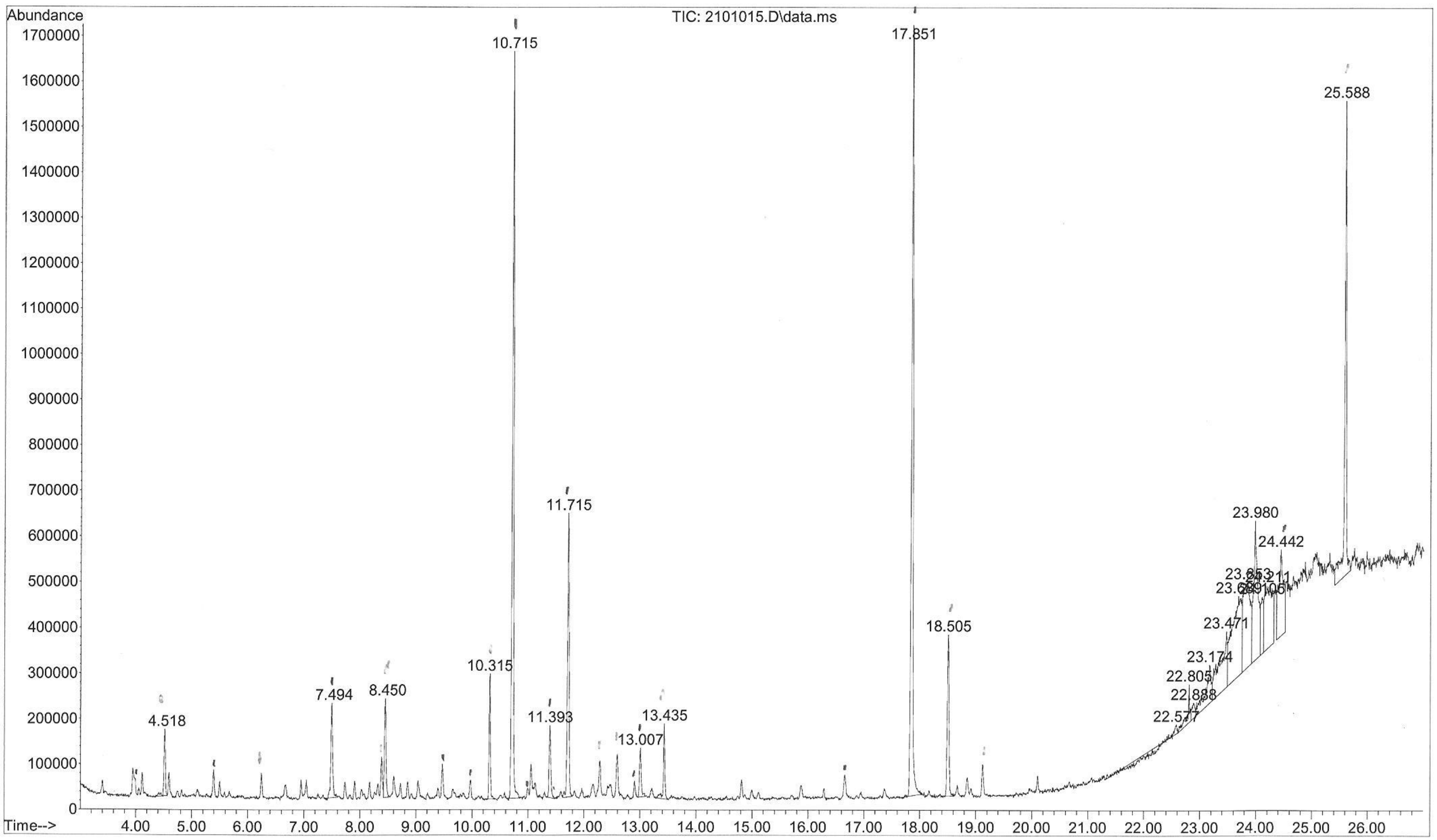


MSD Deconvolution Report
Sample Name: 1424
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1601010.D
Date/Time: 09:24:18 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9496	124185	Decane		84	10.9	90	1
5.3932	1120214	Undecane		75	-3.7	85	2
7.5019	112403	Dodecane		96	5.3	90	1
9.4814	629505	Tridecane		78	5.0	81	37
9.9738	110930	5-Hepten-2-one, 6-methyl-		91	-3.6	88	1
10.7176	112061	Heptylacetat (RT LOCK)	0.5	98	-0.2	94	1
11.0578	124196	Nonanal (Pelargonaldehyd)		90	-3.6	92	1
11.4027	629594	Tetradecane		96	4.4	92	1
11.7193	1014604	1,3-Di-tert-Butylbenzen		97	-1.6	90	1
13.0125	112312	Decanal		94	-4.1	91	1
16.6653	629787	Heptadecane		86	2.8	88	1
17.8539	1731813	Undecylacetate (ISTD)		99	-2.9		
17.8539	112425	1-Undecanol				93	1
24.4450	123955	Stearinsyre-n-butylester		82	-1.5	78	1

```
File:           C:\msdchem\1\DATA\Peter\Peter161115\2101015.D
Operator:       Peter
Date Acquired:  16 Nov 2016  00:14
Instrument:     GC_MS_3
Method File:    SORBUS30_PRECOLUMN.M
Sample Name:    1429
Misc Info:      Cyanobacteria
Vial Number  :  21
```

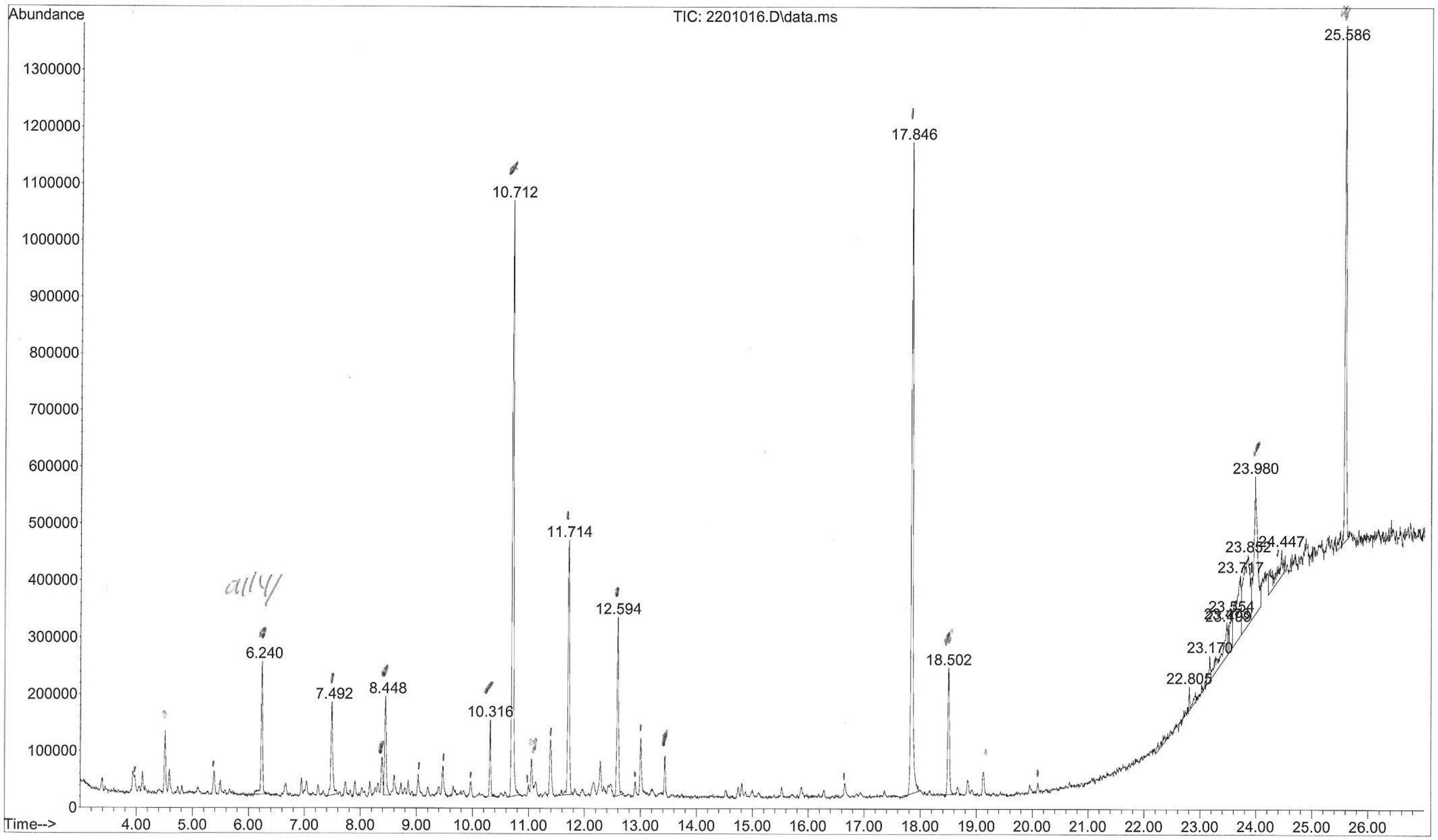


MSD Deconvolution Report
Sample Name: 1429
Data File: C:\msdchem\1\DATA\Peter\Peter161115\2101015.D
Date/Time: 09:28:03 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9467	124185	Decane		91	10.7	91	1
5.3944	1120214	Undecane		81	-3.6	86	3
7.4931	112403	Dodecane		96	4.8	90	1
9.0289	124130	Octanal		79	-2.9	88	1
9.4731	629505	Tridecane		80	4.6	81	45
9.9719	110930	5-Hepten-2-one, 6-methyl-		87	-3.7	88	1
10.715	112061	Heptylacetate RT-LOCK/ISTD	0.5	98	-0.3	94	1
11.0542	124196	Nonanal (Pelargonaldehyd)		87	-3.8	90	1
11.3897	629594	Tetradecane		95	3.7	90	1
11.7134	1014604	1,3-Di-tert-Butylbenzen		97	-1.9	89	1
12.9050	104767	1-Hexanol, 2-ethyl-		88	-4.9	85	1
13.0043	112312	Decanal		93	-4.5	92	1
16.6559	629787	Heptadecane		78	2.2	84	1
17.8504	1731813	Undecylacetate (ISTD)		99	-3.1		
17.8504	112425	1-Undecanol				93	1
20.1013	79776	(E)-beta-Ionone*		72	-11.8	80	2
24.4397	123955	Stearinsyre-n-butylester		73	-2.6	70	1

File: C:\msdchem\1\DATA\Peter\Peter161115\2201016.D
Operator: Peter
Date Acquired: 16 Nov 2016 00:50
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1430
Misc Info: Cyanobacteria
Vial Number : 22



MSD Deconvolution Report
Sample Name: 1430
Data File: C:\msdchem\1\DATA\Peter\Peter161115\2201016.D
Date/Time: 09:28:37 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9415	124185	Decane		89	10.4	86	2
5.3892	1120214	Undecane		75	-3.9	83	2
7.4903	112403	Dodecane		95	4.7	89	1
9.0297	124130	Octanal		78	-2.9	90	1
9.4739	629505	Tridecane		79	4.6	82	27
9.9686	110930	5-Hepten-2-one, 6-methyl-		78	-3.9	81	1
10.712	112061	Heptylacetate RT-LOCK/ISTD	0.5	99	-0.4	94	1
11.0549	124196	Nonanal (Pelargonaldehyd)		86	-3.7	89	1
11.3893	629594	Tetradecane		94	3.7	90	1
11.7130	1014604	1,3-Di-tert-Butylbenzen		97	-1.9	88	1
12.9069	104767	1-Hexanol, 2-ethyl-		79	-4.8	78	2
13.0062	112312	Decanal		94	-4.4	92	1
17.8458	1731813	Undecylacetate (ISTD)		99	-3.4		
17.8458	112425	1-Undecanol				94	1
23.1684	A71IYV~1N1 002	Phthalic acid, cyclobutyl ethyl ester		75			
23.1684	84662	Diethyl Phthalate				86	1
7.247		s-Limonene	0.05				

8.37 trimethyl 14905-56-7 5.27%

8.448 n-tetradecane 629-59-4 12.20%

10.31 cyclomethicone 6 540-97-6 93.7%

10.712 heptylacetate 112-06-1 83%

12.20 ~~n-hexadecane~~ 544-76-3 heptadecane

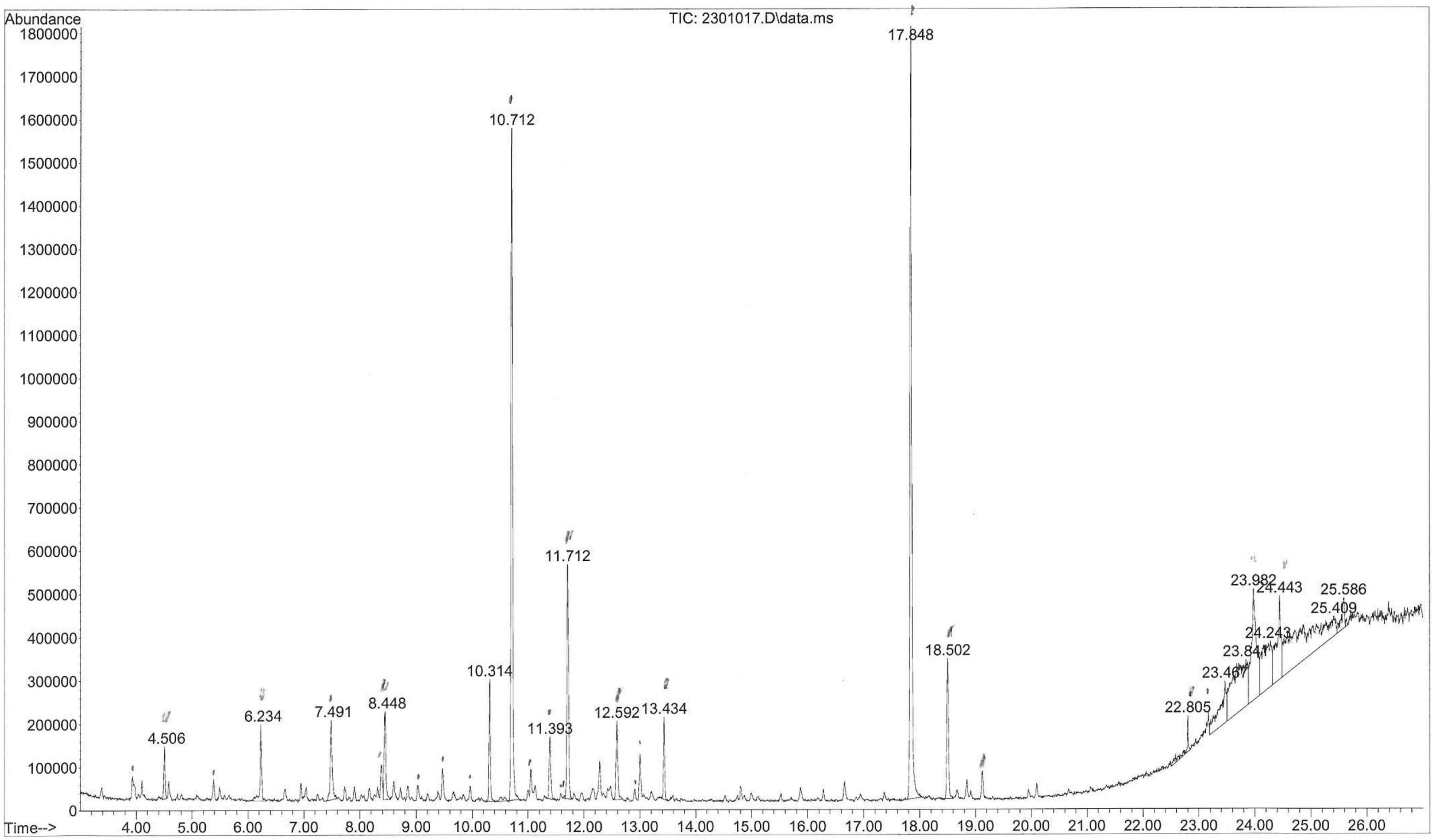
18.502 trans-1,10-Dimethyl-trans-9-decainol N/A 44.9

23.980 95721-96-3

11.5 Dodecane 112-40-3 9.3%

22.0 Phenol 96-76-4 20.3%

```
File:           C:\msdchem\1\DATA\Peter\Peter161115\2301017.D
Operator:       Peter
Date Acquired:  16 Nov 2016   1:26
Instrument:     GC_MS_3
Method File:    SORBUS30_PRECOLUMN.M
Sample Name:    1431
Misc Info:      Cyanobacteria
Vial Number   : 23
```

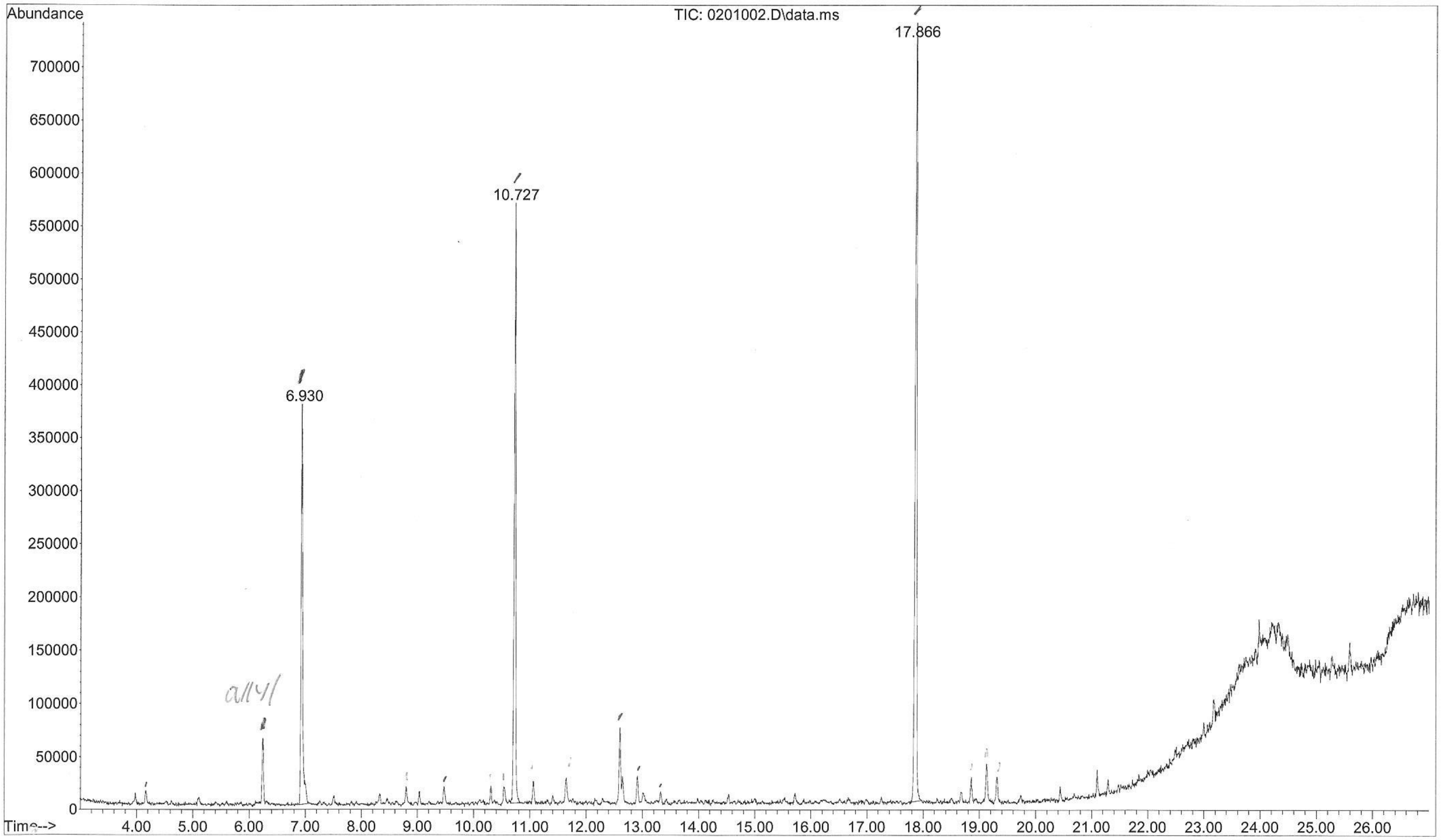


MSD Deconvolution Report
Sample Name: 1431
Data File: C:\msdchem\1\DATA\Peter\Peter161115\2301017.D
Date/Time: 09:29:19 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9332	124185	Decane		87	9.9	92	1
3.9732	556672	Octametylcylcotetrasiloxane		70		86	1
5.3874	1120214	Undecane		82	-4.1	85	4
7.4914	112403	Dodecane		95	4.7	90	1
9.0284	124130	Octanal		81	-2.9	86	1
9.4691	629505	Tridecane		84	4.3	82	37
9.9673	110930	5-Hepten-2-one, 6-methyl-		80	-3.9	84	1
10.7117	112061	Heptylacetat (RT LOCK)	0.5	98	-0.5	92	1
11.0502	124196	Nonanal (Pelargonaldehyd)		89	-4.0	91	1
11.3933	629594	Tetradecane		94	3.9	91	1
11.7106	1014604	1,3-Di-tert-Butylbenzen		97	-2.1	88	1
12.9086	104767	1-Hexanol, 2-ethyl-		86	-4.7		
12.9086	62108230	Decane, 2,5,6-trimethyl-				84	1
13.0049	112312	Decanal		94	-4.5	92	1
16.6624	629787	Heptadecane		82	2.7	88	1
17.8475	1731813	Undecylacetate (ISTD)		99	-3.3		
17.8475	112425	1-Undecanol				93	1
20.0972	79776	(E)-beta-Ionone*		73	-12.2	78	3
23.1683	A71IYV~1N1002	Phthalic acid, cyclobutyl ethyl ester		75			
23.1683	84662	Diethyl Phthalate				87	1
24.4386	123955	Stearinsyre-n-butylester		74	-2.9	68	1

File:	C:\msdchem\1\DATA\Peter\Peter161115\0201002.D
Operator:	Peter
Date Acquired:	15 Nov 2016 10:32
Instrument:	GC_MS_3
Method File:	SORBUS30_PRECOLUMN.M
Sample Name:	1410
Misc Info:	Pellets U CB
Vial Number	: 2

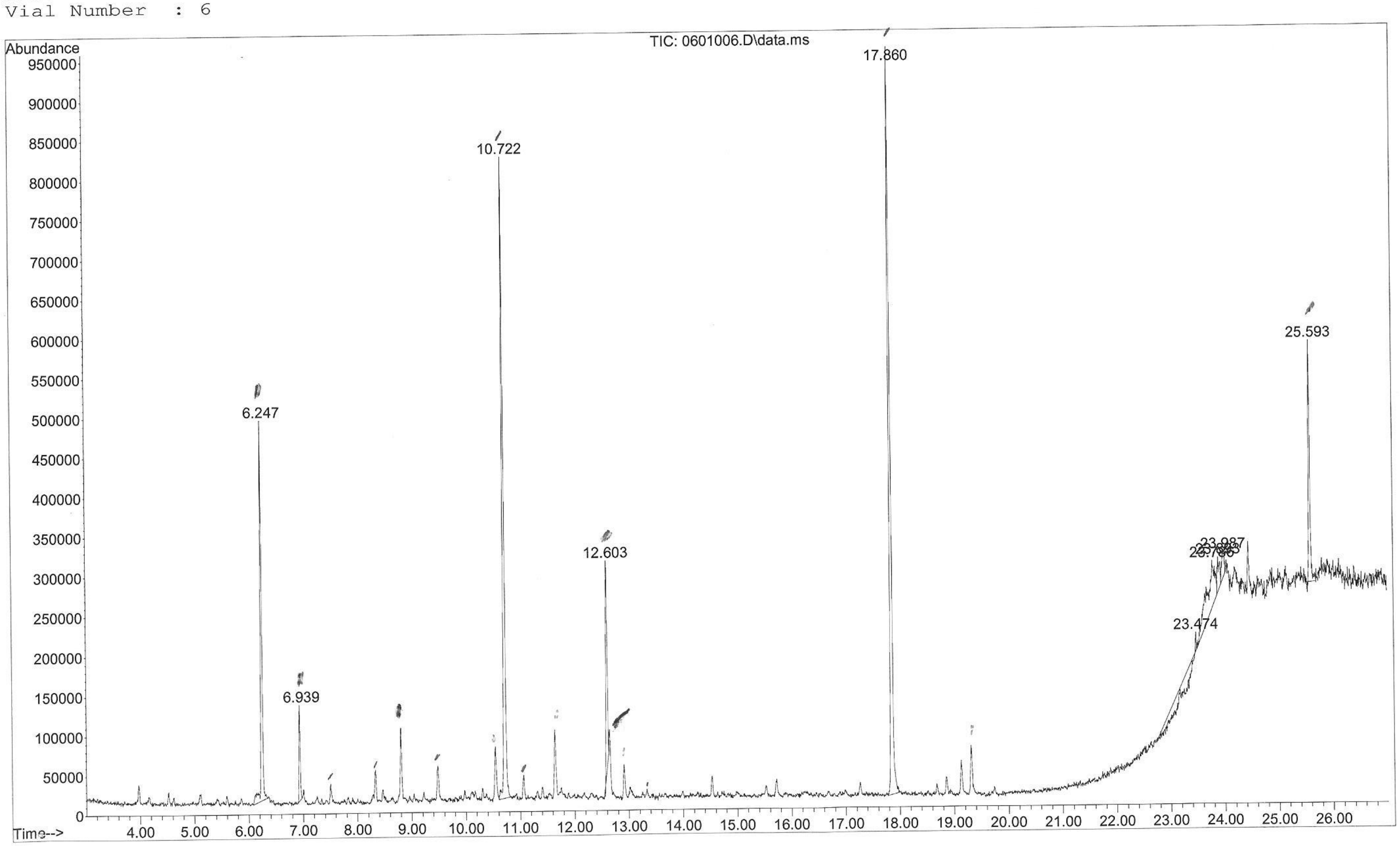


MSD Deconvolution Report
Sample Name: 1410
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0201002.D
Date/Time: 09:14:18 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.1624	7785264	Alfa-Pinene		77	1.5	78	2
9.4786	629505	Tridecane		87	4.8	83	9
10.7259	112061	Heptylacetat (RT LOCK)	0.5	99	0.3	92	1
12.6454	1124114	Pyrazine, tetramethyl-		70		82	3
12.9104	104767	1-Hexanol, 2-ethyl-		90	-4.6	90	1
13.3329	100527	Benzaldehyde		76	-7.4	77	2
17.8664	1731813	Undecylacetate (ISTD)		100	-2.1		
17.8664	112425	1-Undecanol				93	1

File: C:\msdchem\1\DATA\Peter\Peter161115\0601006.D
Operator: Peter
Date Acquired: 15 Nov 2016 12:56
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1414
Misc Info: Pellets u CB
Vial Number : 6



MSD Deconvolution Report
Sample Name: 1414
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0601006.D
Date/Time: 09:17:38 AM Wednesday, Nov 16 2016

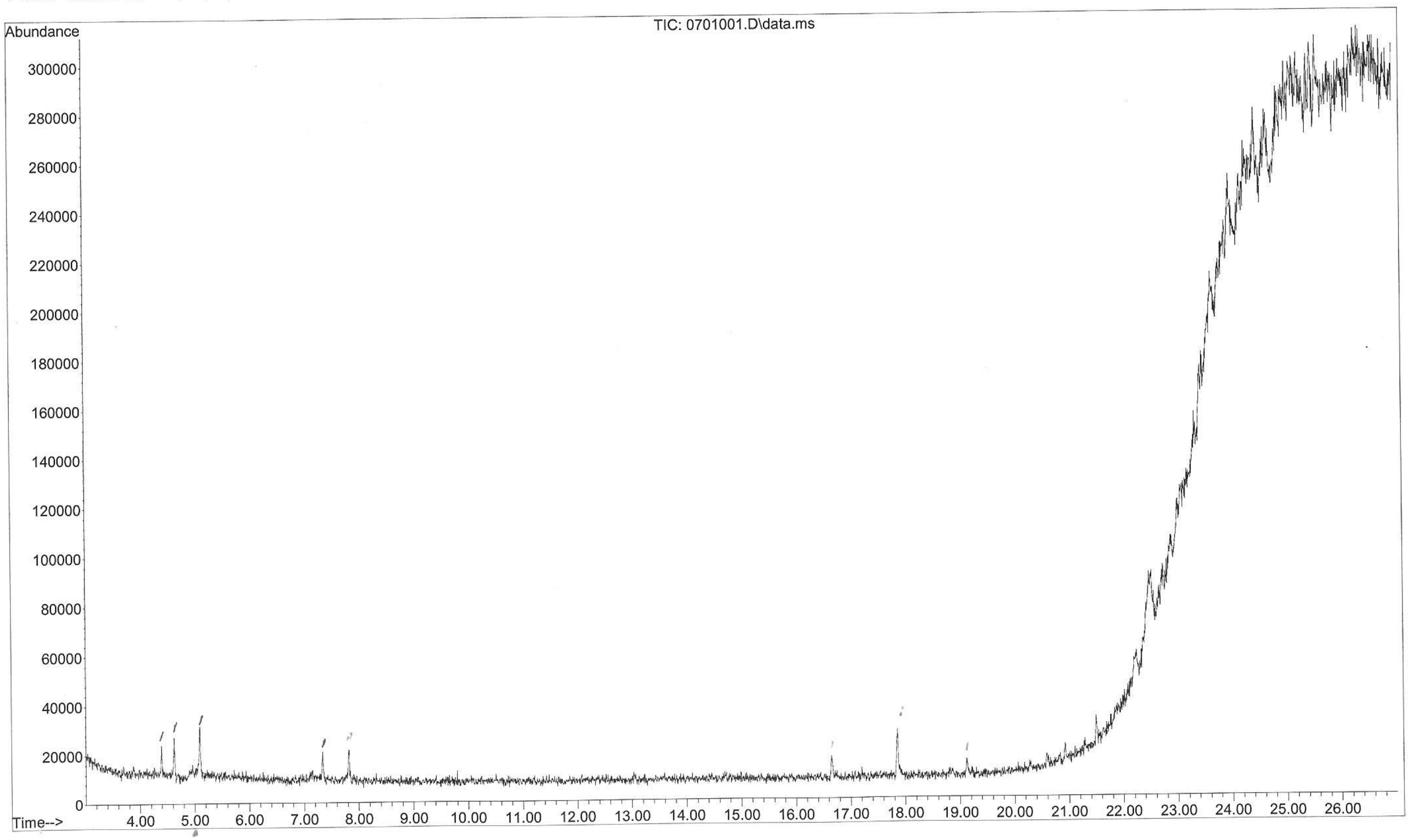
The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
7.5064	112403	Dodecane		71	5.5	79	35
8.3319	100425	Styrene		98	-4.0	94	1
9.4765	629505	Tridecane		89	4.7	85	2
10.7209	112061	Heptylacetat (RT LOCK)	0.5	98	0.0	93	1
11.0664	124196	Nonanal (Pelargonaldehyd)		76	-3.2	87	1
12.6492	1124114	Pyrazine, tetramethyl-		73		87	2
12.9095	104767	1-Hexanol, 2-ethyl-		90	-4.6	90	1
13.3284	100527	Benzaldehyde		92	-7.7	90	1
17.8584	1731813	Undecylacetate (ISTD)		100	-2.6		
17.8584	112425	1-Undecanol				93	1
8.333		Styrene	0.01				

~~19.31~~

pentanic acid 19.31 N/A 66%

File: C:\msdchem\1\DATA\Peter\Peter161115\0701001.D
Operator: Peter
Date Acquired: 15 Nov 2016 15:49
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1415
Misc Info: Pellets u CB
Vial Number : 7

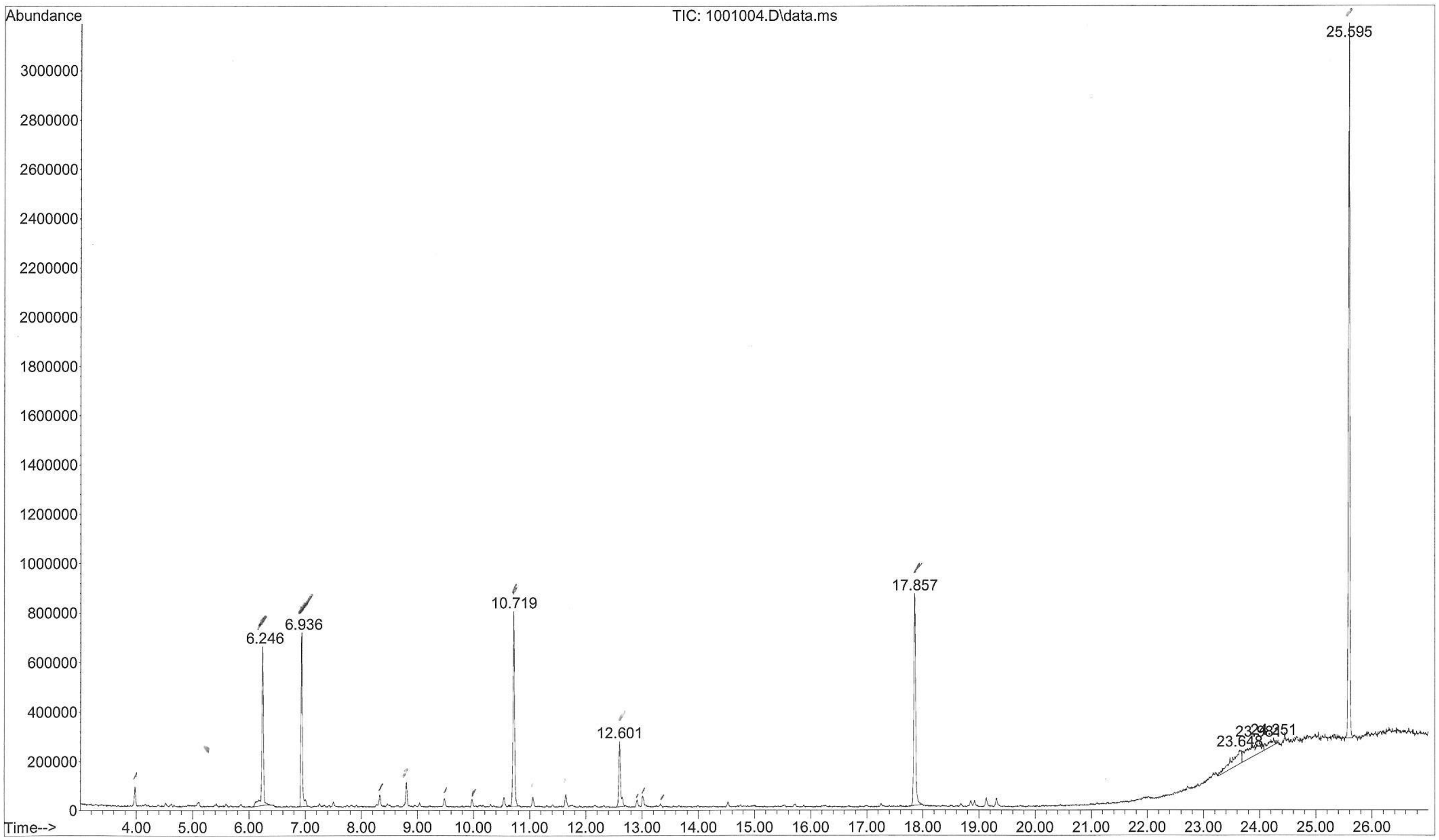


MSD Deconvolution Report
Sample Name: 1415
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0701001.D
Date/Time: 09:18:13 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.3916	108883	Toluene		84	6.1	87	4
4.6248	589388	3-Hexanon		90	4.8	92	1
5.0954	591786	2-Hexanone		86	3.7	91	1
7.3399	623370	3-Hexanol		78	1.1	85	2

File: C:\msdchem\1\DATA\Peter\Peter161115\1001004.D
Operator: Peter
Date Acquired: 15 Nov 2016 17:37
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1418
Misc Info: Pellets u CB
Vial Number : 10



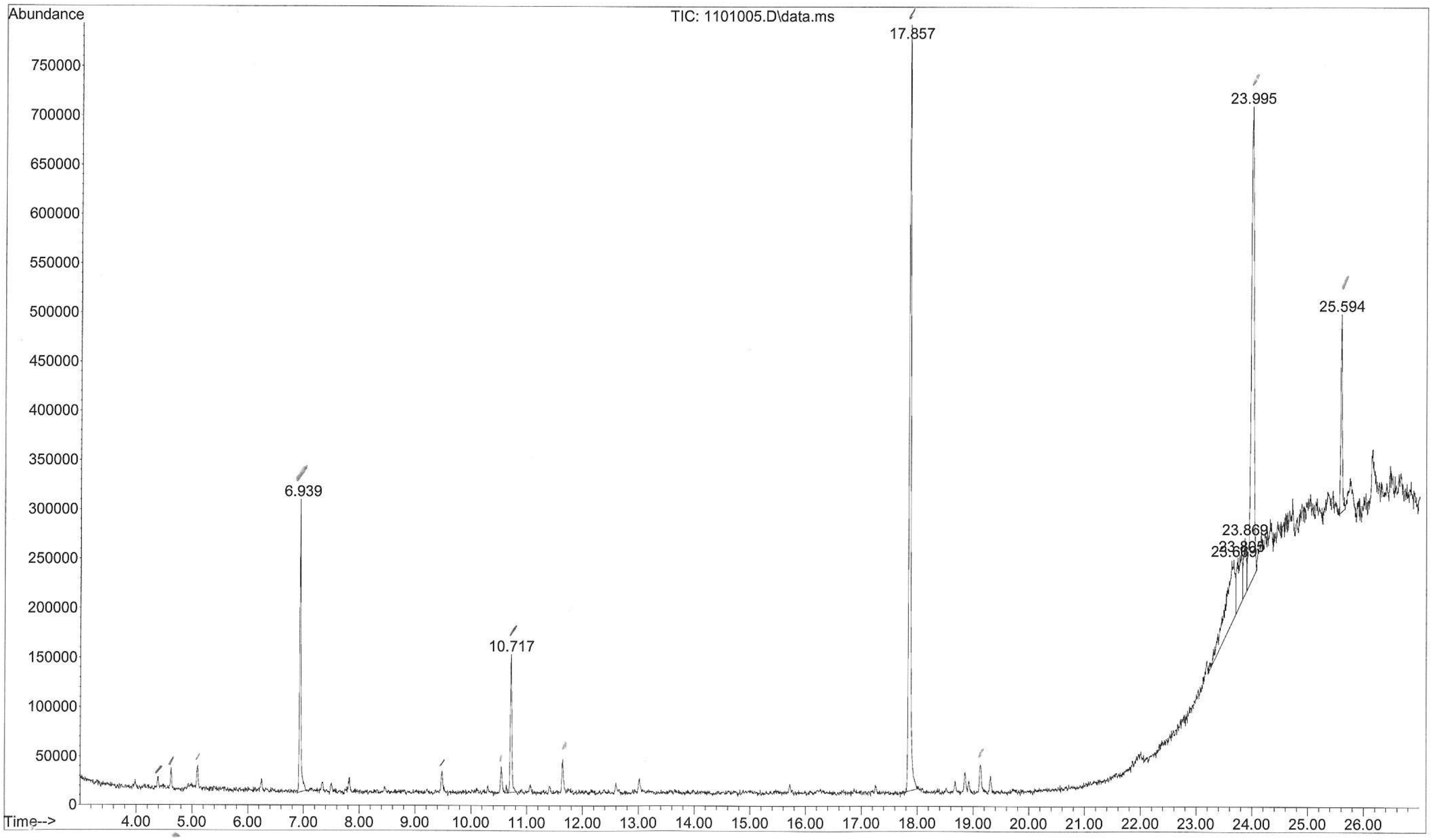
MSD Deconvolution Report
Sample Name: 1418
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1001004.D
Date/Time: 09:19:47 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9746	556672	Octametylcylcotetrasiloxane		75		90	1
8.3324	100425	Styrene		96	-3.9	93	1
9.4799	629505	Tridecane		86	4.9	84	2
9.9681	110930	5-Hepten-2-one, 6-methyl-		80	-3.9	84	1
10.7184	112061	Heptylacetat (RT LOCK)	0.5	99	-0.1	93	1
12.9153	104767	1-Hexanol, 2-ethyl-		78	-4.3	85	1
13.0016	112312	Decanal		86	-4.7	89	1
13.3277	100527	Benzaldehyde		88	-7.7	86	1
17.8559	1731813	Undecylacetate (ISTD)		99	-2.8		
17.8559	112425	1-Undecanol				93	1
8.334		Styrene	0.01				

Allyl Sulfide 6.246 R.T. CAS: 592-88-1
Phenylalanine * 8.8 R.T Cas: 63-91-2 57%
Allyl Disulfide 12.601 RT Cas: 2179-57-9
Diisooctyladipate 25.595 1330-86-5 62%

File: C:\msdchem\1\DATA\Peter\Peter161115\1101005.D
Operator: Peter
Date Acquired: 15 Nov 2016 18:13
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1419
Misc Info: Pellets u CB
Vial Number : 11



MSD Deconvolution Report
Sample Name: 1419
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1101005.D
Date/Time: 09:20:09 AM Wednesday, Nov 16 2016

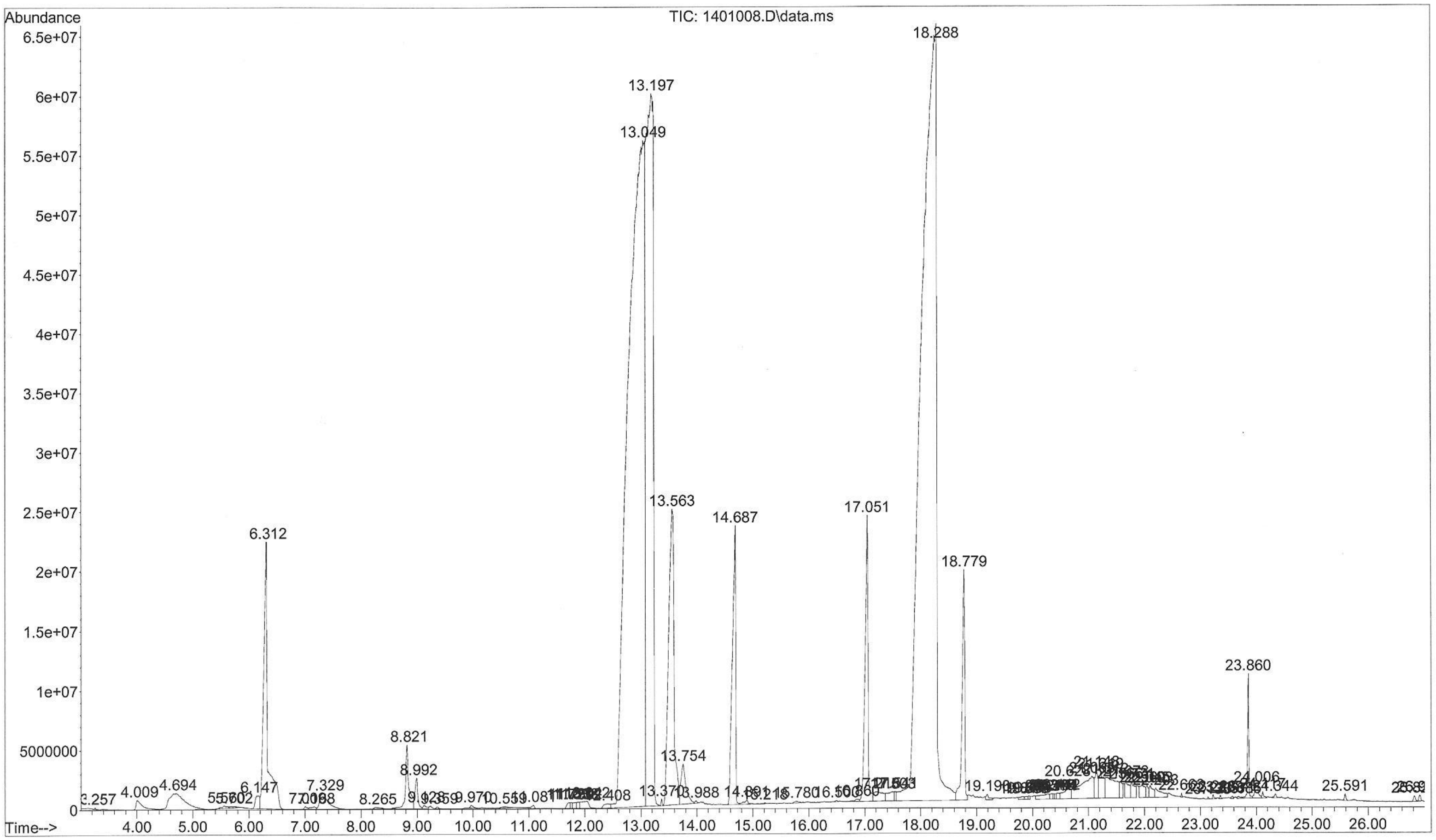
The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.3917	108883	Toluene		81	6.1	88	1
4.6191	589388	3-Hexanon		84	4.5	91	1
5.0991	591786	2-Hexanone		79	3.9	88	1
9.4875	629505	Tridecane		73	5.3	78	26
10.7149	112061	Heptylacetat (RT LOCK)	0.5	97	-0.3	93	1
17.8547	1731813	Undecylacetate (ISTD)		99	-2.8		
17.8547	112425	1-Undecanol				93	1
17.857		1-Decanol	1.22				

Dimethylsiloxane pentamer 6.939 RT CAS: 541-02-6

Hexaplas 23.995 RT CAS 27554-26-3

File: C:\msdchem\1\DATA\Peter\Peter161115\1401008.D
Operator: Peter
Date Acquired: 15 Nov 2016 20:01
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1422
Misc Info: Garlic
Vial Number : 14

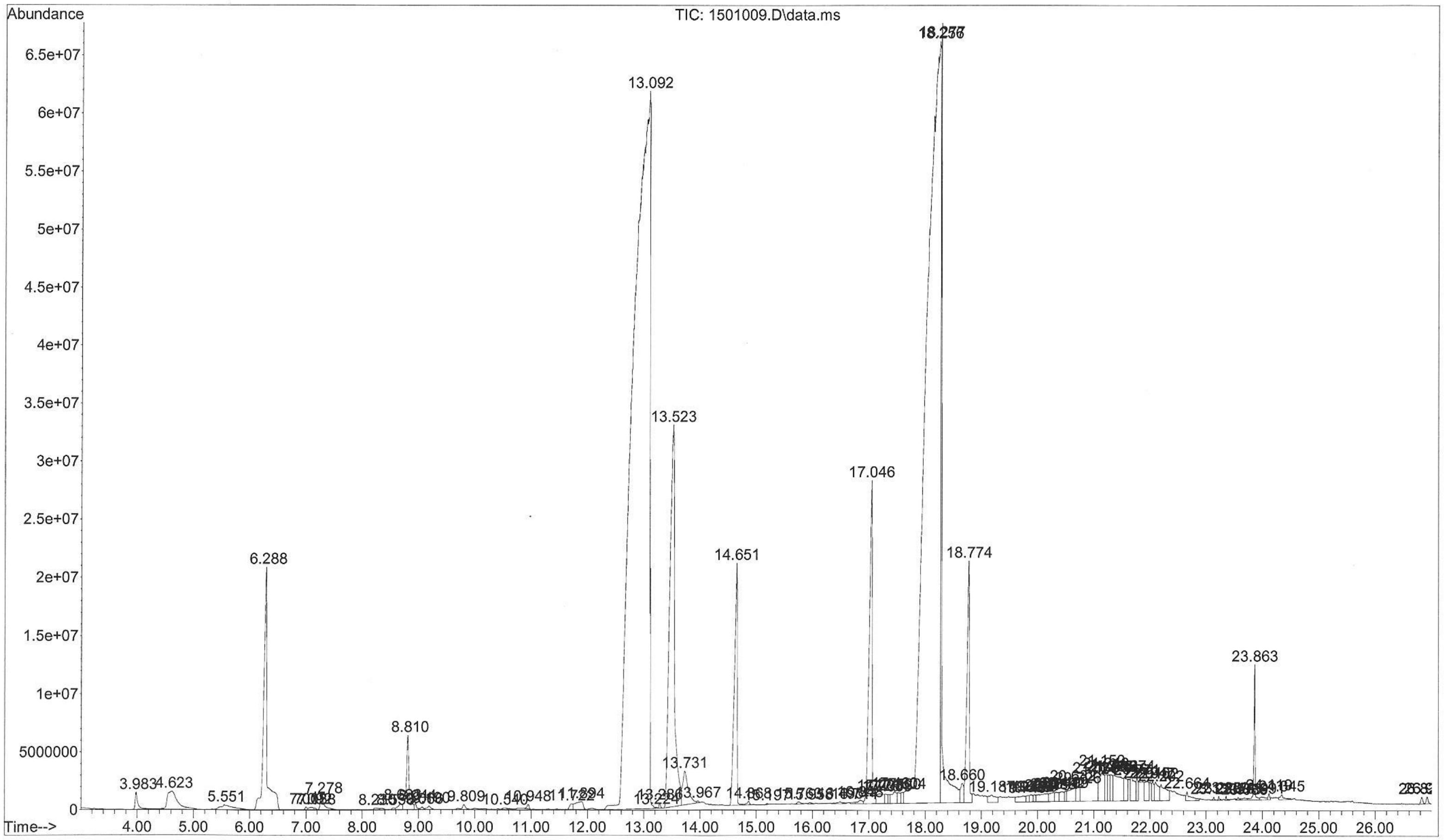


MSD Deconvolution Report
Sample Name: 1422
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1401008.D
Date/Time: 09:22:49 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.0056	556672	Octametylcylcotetrasiloxane		78		93	1
7.3364	138863	s-Limonene		94	4.9	90	3
9.3588	629505	Tridecane		82	-1.3	83	21
10.765	112061	Heptylacetate RT-LOCK/ISTD	0.5				
11.0797	112061	Heptylacetat (RT LOCK)		79	18.5	91	1
13.2595	112312	Decanal		72	9.4	79	1
13.9880	78706	Linalool		88	-1.3	88	1
16.4974	98555	a-Terpinol		86	-8.3	79	3
18.8600	91576	Naphthalene, 2-methyl-		74		90	1
18.9364	90051	Guaiacol (Phenol, 2-methoxy-)		94	-6.4	93	1
7.329		s-Limonene	7.4				

File:	C:\msdchem\1\DATA\Peter\Peter161115\1501009.D
Operator:	Peter
Date Acquired:	15 Nov 2016 20:37
Instrument:	GC_MS_3
Method File:	SORBUS30_PRECOLUMN.M
Sample Name:	1423
Misc Info:	Garlic
Vial Number :	15

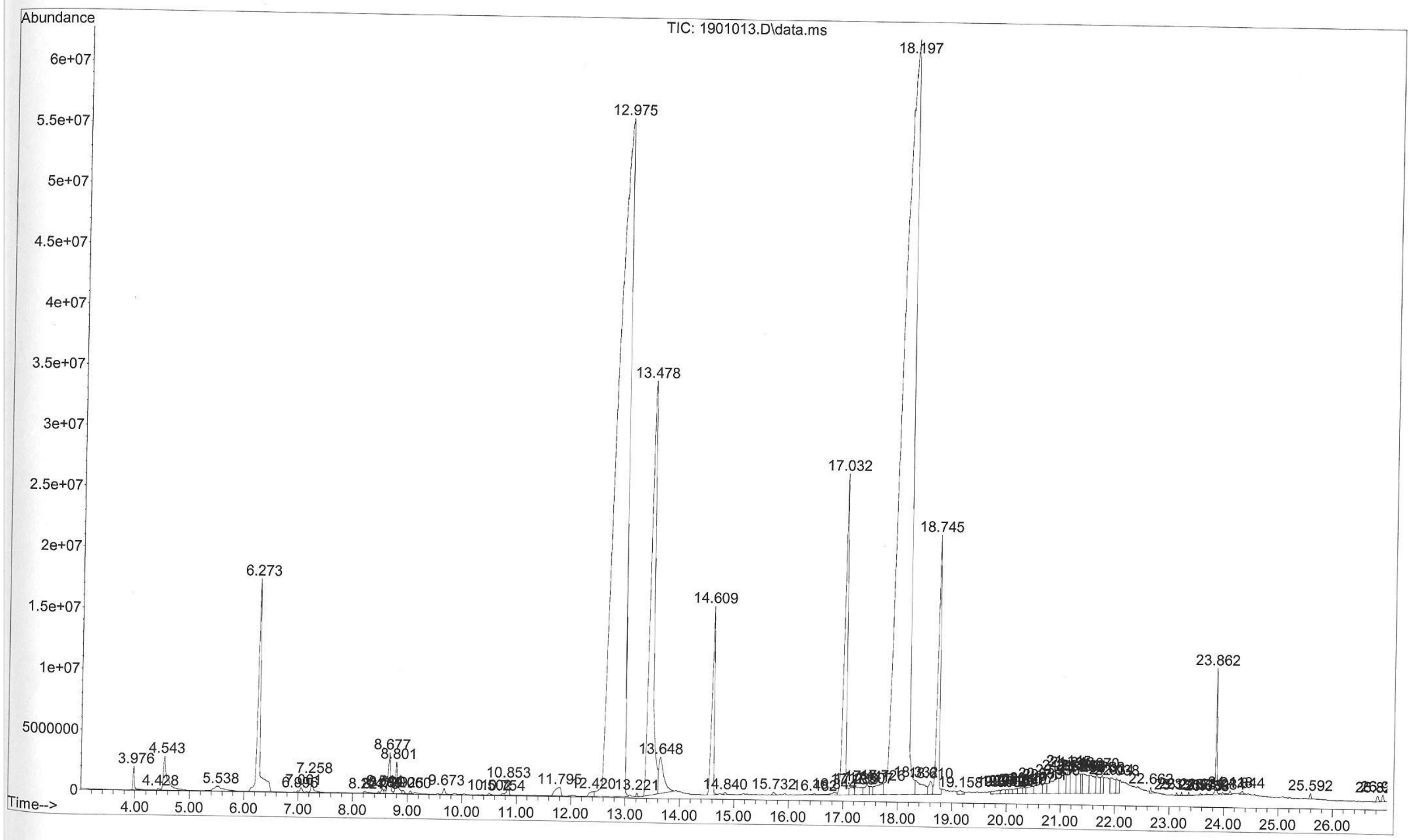


MSD Deconvolution Report
Sample Name: 1423
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1501009.D
Date/Time: 09:23:35 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

R.T.	Cas #	Compound Name	Agilent ChemStation Amount (ng)	AMDIS Match	AMDIS R.T. Diff sec.	NIST Reverse Match	NIST Hit Num.
3.9800	556672	Octametylcylcotetrasiloxane		78		92	1
5.5957	1120214	Undecane		82	7.2	89	2
7.2779	138863	s-Limonene		94	1.9	91	2
9.1915	629505	Tridecane		80	-9.7	82	59
10.6903	3658808	Dimethyl trisulfide		72	-6.6	84	1
10.767	112061	Heptylacetate RT-LOCK/ISTD	0.5				
10.9483	112061	Heptylacetat (RT LOCK)		96	11.7	90	1
13.1574	112312	Decanal		82	3.7	84	1
13.9665	78706	Linalool		86	-2.5	85	1
16.4947	98555	a-Terpinol		83	-8.5	81	3
18.8572	91576	Naphthalene, 2-methyl-		73		88	1
18.9371	90051	Guaiacol (Phenol, 2-methoxy-)		93	-6.3	90	1
19.7309	60128	Phenylethyl Alcohol		73	-11.4	70	1
7.28		s-Limonene	10.01				
23.23		Trans-trans farnesol	0.08				

File: C:\msdchem\1\DATA\Peter\Peter161115\1901013.D
Operator: Peter
Date Acquired: 15 Nov 2016 23:01
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1427
Misc Info: Garlic
Vial Number : 19

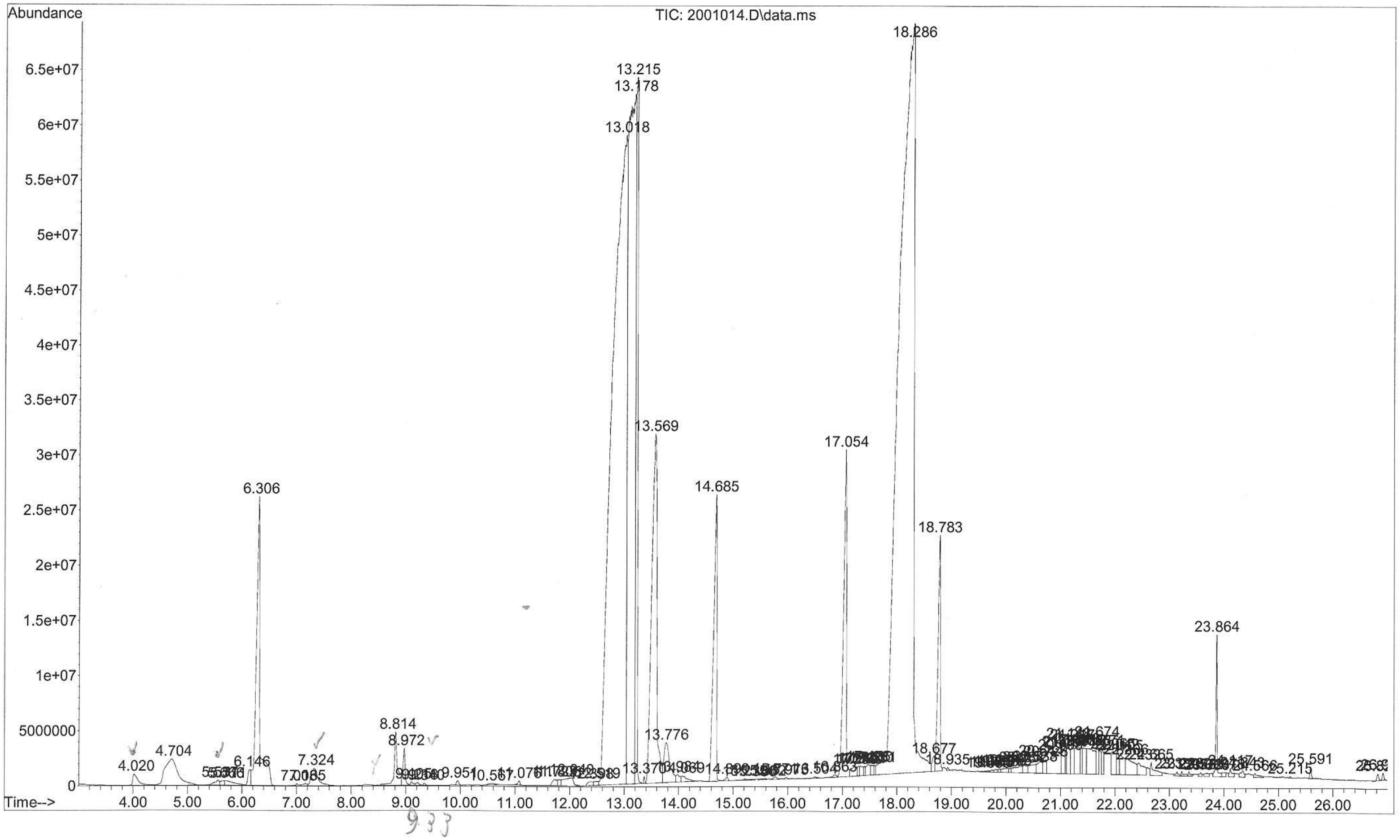


MSD Deconvolution Report
Sample Name: 1427
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1901013.D
Date/Time: 09:26:25 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9738	556672	Octametylcylcotetrasiloxane		77		93	1
4.3627	108883	Toluene		77	4.3	85	5
5.5020	1120214	Undecane		87	2.4	89	2
7.2235	112403	Dodecane		73	-8.9	77	29
7.2582	138863	s-Limonene		94	0.8	91	2
8.6765	629629	Pentadecane (ISTD)		70	-235.6	88	1
9.6730	629505	Tridecane		71	14.9	84	33
10.6830	3658808	Dimethyl trisulfide		71	-7.0	84	1
10.748	112061	Heptylacetate RT-LOCK/ISTD	0.5				
10.8534	112061	Heptylacetat (RT LOCK)		97	6.8	92	1
13.0984	112312	Decanal		77	0.5	81	1
13.9409	78706	Linalool		84	-4.0	81	1
16.4815	98555	a-Terpinol		81	-9.3	79	3
18.1054	1731813	Undecylacetate (ISTD)		83	12.8		
18.1054	112425	1-Undecanol				89	1
18.8270	91576	Naphthalene, 2-methyl-		74		89	1
18.9263	90051	Guaiacol (Phenol, 2-methoxy-)		92	-7.0	91	1
19.7283	60128	Phenylethyl Alcohol		74	-11.6	66	2
24.4457	123955	Stearinsyre-n-butylester		77	-1.3	67	1
7.258		s-Limonene	2.85				

File: C:\msdchem\1\DATA\Peter\Peter161115\2001014.D
Operator: Peter
Date Acquired: 15 Nov 2016 23:37
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1428
Misc Info: Garlic
Vial Number : 20

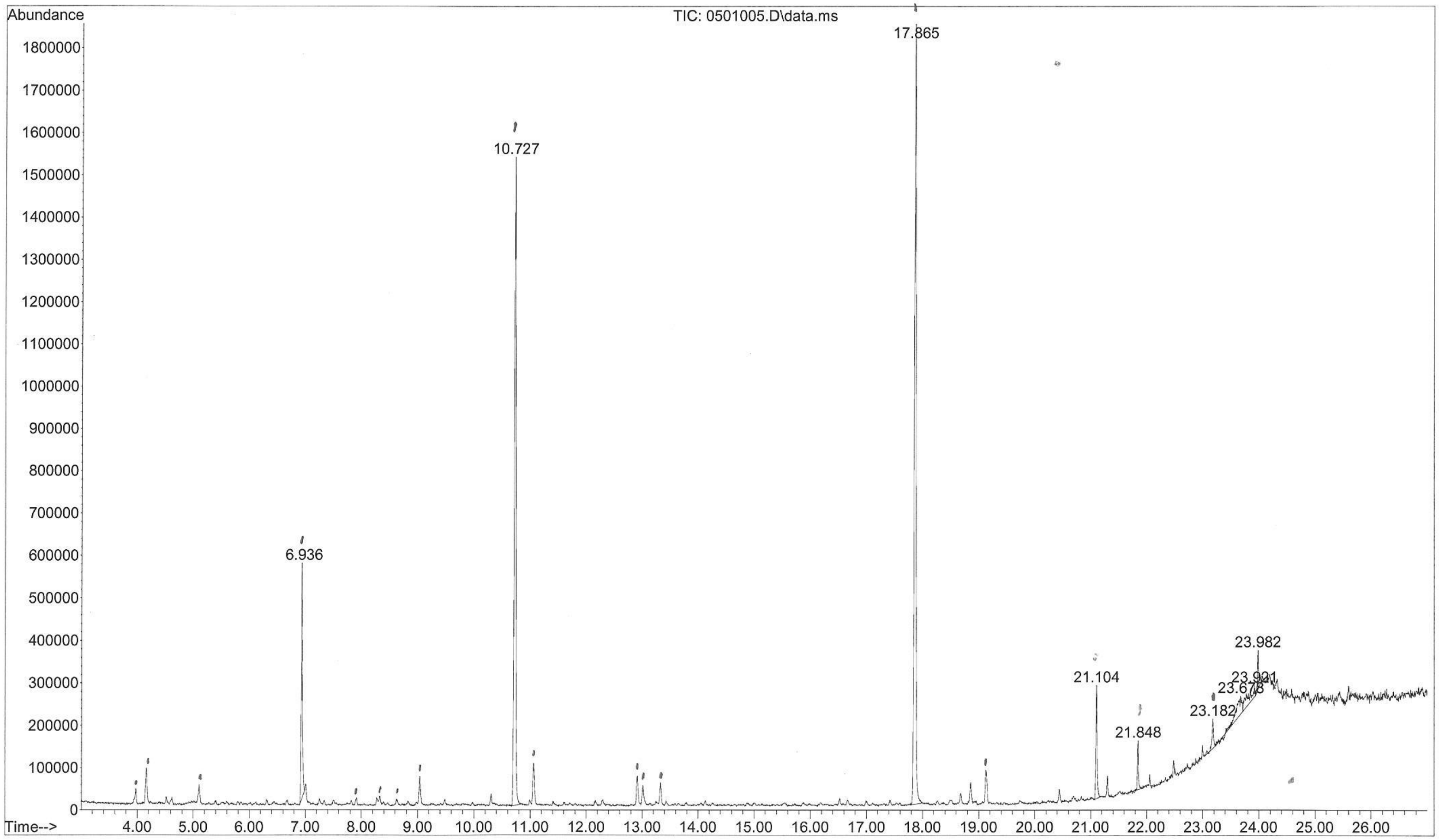


MSD Deconvolution Report
Sample Name: 1428
Data File: C:\msdchem\1\DATA\Peter\Peter161115\2001014.D
Date/Time: 09:27:11 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.0161	556672	Octametylcylcotetrasiloxane		78		92	1
5.6483	1120214	Undecane		83	9.9	88	1
7.3228	138863	s-Limonene		94	4.2	90	3
8.5637	872559	Thiophene, 2-ethyl-		70		84	1
8.9732	629629	Pentadecane (ISTD)		70	-220.7	88	1
9.3398	629505	Tridecane		83	-2.3	86	8
10.7076	3658808	Dimethyl trisulfide		81	-5.7	85	1
10.788	112061	Heptylacetate RT-LOCK/ISTD	0.5				
11.0772	112061	Heptylacetat (RT LOCK)		80	18.4	94	1
13.2588	112312	Decanal		80	9.4	84	1
13.9856	78706	Linalool		85	-1.4	87	1
16.5003	98555	a-Terpinol		85	-8.1	86	3
18.8651	91576	Naphthalene, 2-methyl-		74		89	1
18.9356	90051	Guaiacol (Phenol, 2-methoxy-)		94	-6.4	89	1
19.7376	60128	Phenylethyl Alcohol		75	-10.7	70	2
7.326		s-Limonene	8.02				

File: C:\msdchem\1\DATA\Peter\Peter161115\0501005.D
Operator: Peter
Date Acquired: 15 Nov 2016 12:20
Instrument: GC_MS_3
Method File: SORBUS30_PRECOLUMN.M
Sample Name: 1413
Misc Info: Control
Vial Number : 5

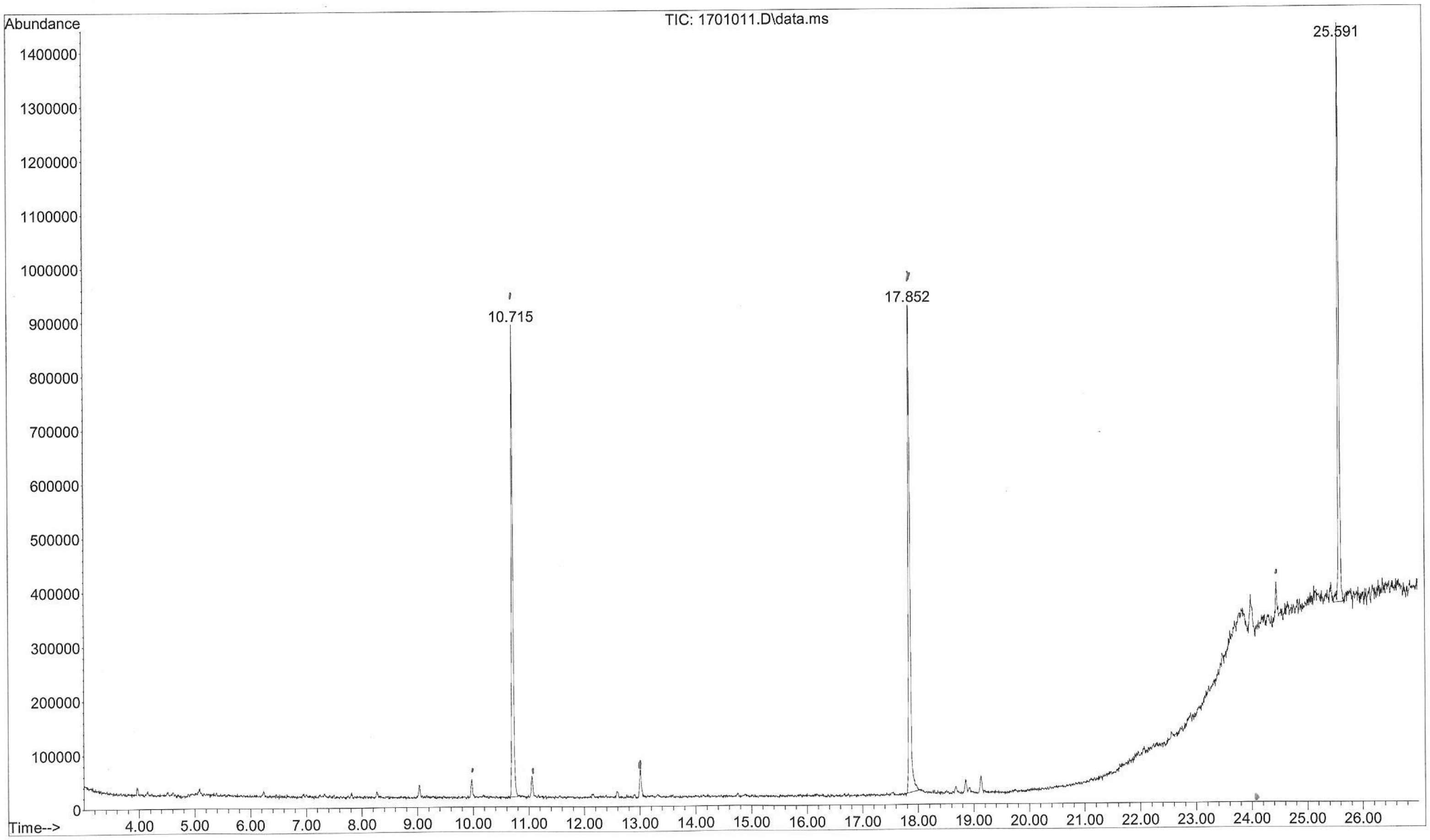


MSD Deconvolution Report
Sample Name: 1413
Data File: C:\msdchem\1\DATA\Peter\Peter161115\0501005.D
Date/Time: 09:17:09 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
3.9726	556672	Octametylcylcotetrasiloxane		70		86	1
4.1665	7785264	Alfa-Pinene		98	1.7	90	3
5.1107	66251	Hexanal		84	3.6	82	1
6.9667	110430	2-Heptanone		79	-1.2	77	1
7.9145	3777693	Furan, 2-pentyl-		79	-2.0	82	1
8.3275	100425	Styrene		88	-4.2	90	1
8.6325	99876	p-Cymene		86	-2.9	80	4
9.0426	124130	Octanal		90	-2.2	90	1
10.727	112061	Heptylacetate RT-LOCK/ISTD	0.5	98	0.3	93	1
11.0655	124196	Nonanal (Pelargonaldehyd)		96	-3.2	93	1
12.9145	104767	1-Hexanol, 2-ethyl-		88	-4.4	87	2
13.0144	112312	Decanal		85	-4.0	89	1
13.3275	100527	Benzaldehyde		96	-7.7	94	1
17.8640	1731813	Undecylacetate (ISTD)		100	-2.3		
17.8640	112425	1-Undecanol				93	1
19.1319	112709	1-Tridecanol		70		87	2
23.1719	A71IYV~1N1 002	Phthalic acid, cyclobutyl ethyl ester		78			
23.1719	84662	Diethyl Phthalate				85	1
8.633		p-cymen	0.04				

```
File:           C:\msdchem\1\DATA\Peter\Peter161115\1701011.D
Operator:       Peter
Date Acquired: 15 Nov 2016  21:49
Instrument:     GC_MS_3
Method File:    SORBUS30_PRECOLUMN.M
Sample Name:    1425
Misc Info:      Control traces of garlic
Vial Number   : 17
```

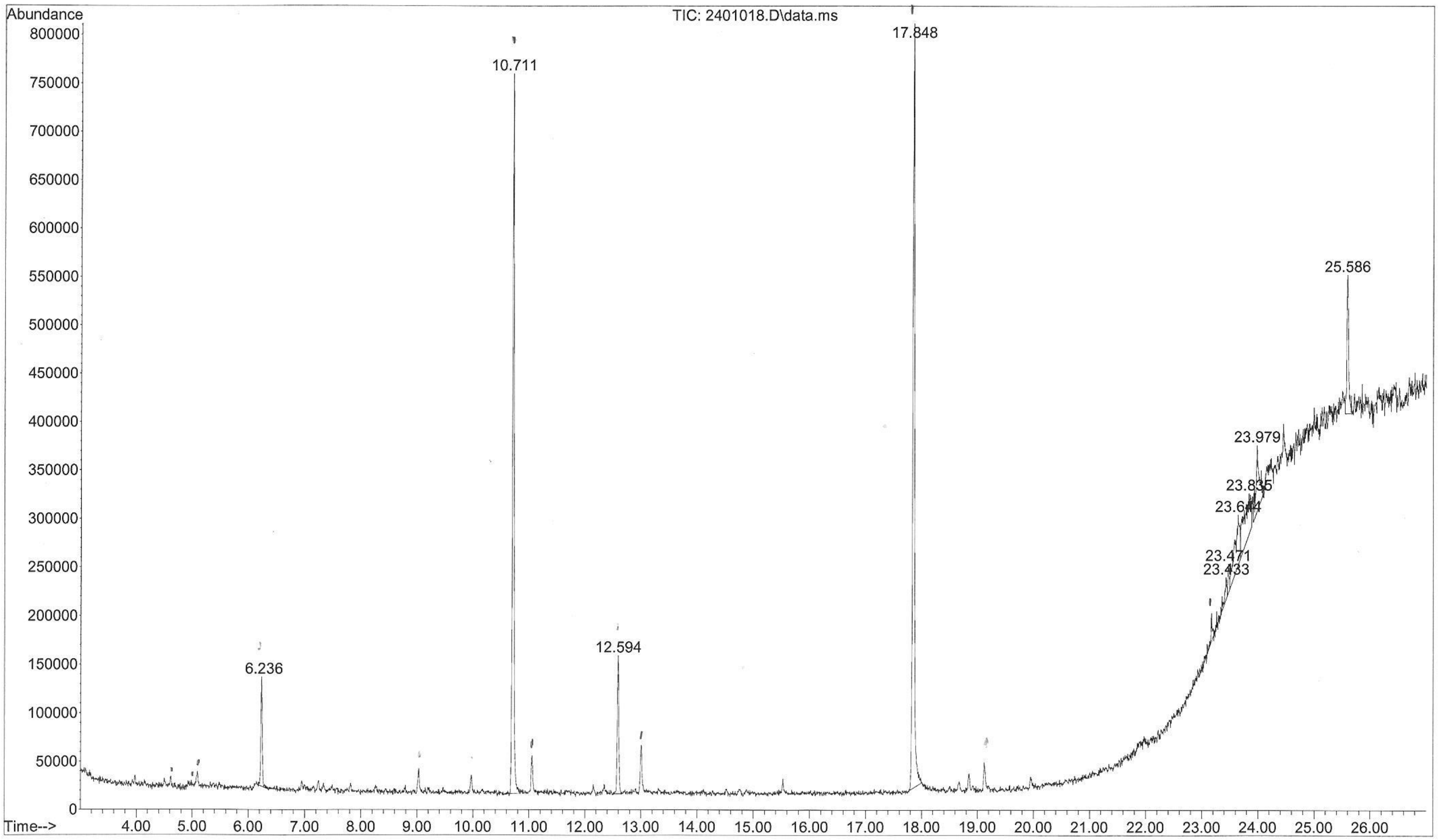


MSD Deconvolution Report
Sample Name: 1425
Data File: C:\msdchem\1\DATA\Peter\Peter161115\1701011.D
Date/Time: 09:24:49 AM Wednesday, Nov 16 2016

The NIST library was searched for the components that were found in the AMDIS target library.

			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
9.9643	110930	5-Hepten-2-one, 6-methyl-		88	-4.1	86	1
10.7140	112061	Heptylacetat (RT LOCK)	0.5	99	-0.4	94	1
11.0594	124196	Nonanal (Pelargonaldehyd)		92	-3.5	91	1
13.0060	112312	Decanal		87	-4.5	88	1
17.8521	1731813	Undecylacetate (ISTD)		100	-3.0		
17.8521	112425	1-Undecanol				93	1
24.4455	123955	Stearinsyre-n-butylester		74	-1.3	66	1

File:	C:\msdchem\1\DATA\Peter\Peter161115\2401018.D
Operator:	Peter
Date Acquired:	16 Nov 2016 2:02
Instrument:	GC_MS_3
Method File:	SORBUS30_PRECOLUMN.M
Sample Name:	1432
Misc Info:	Control
Vial Number :	24

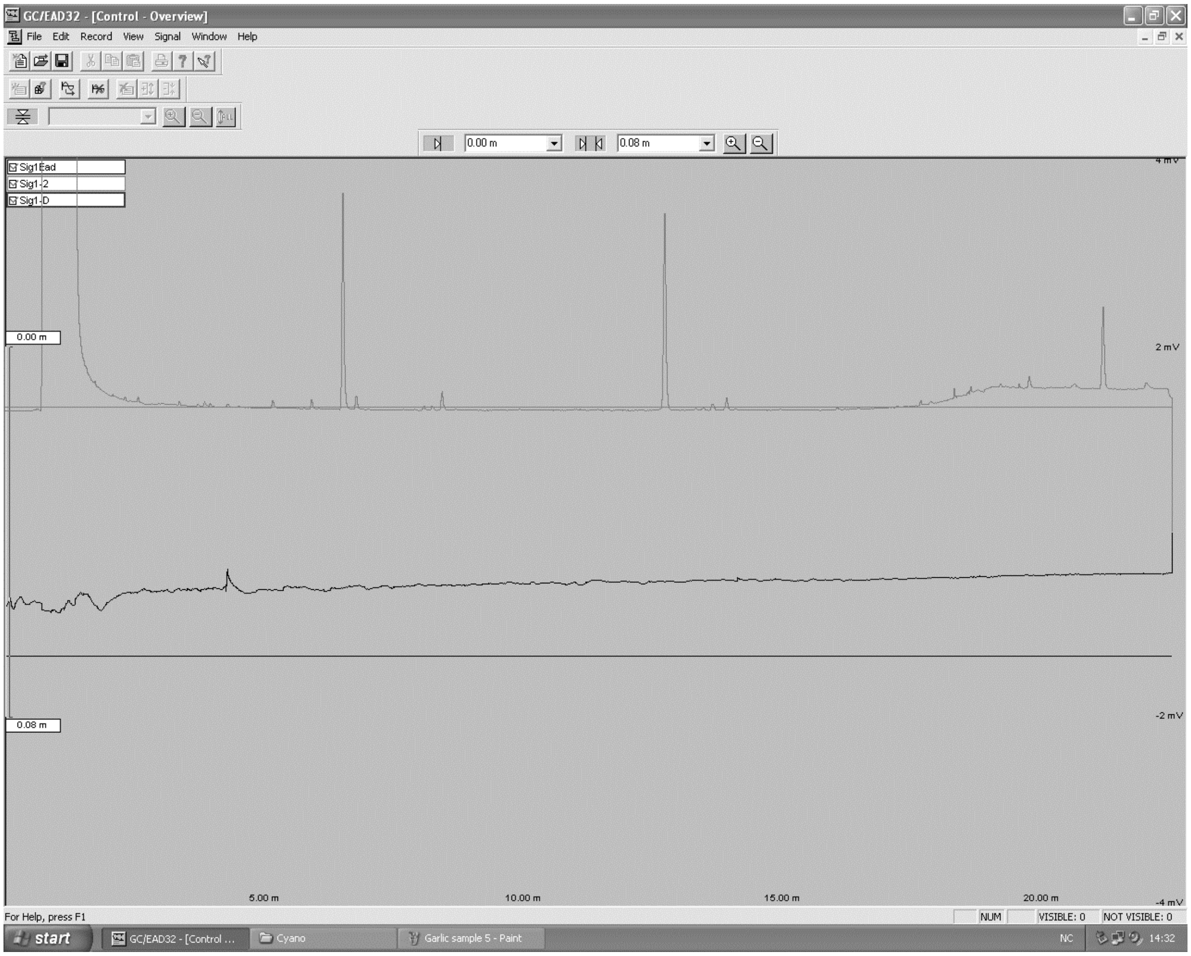


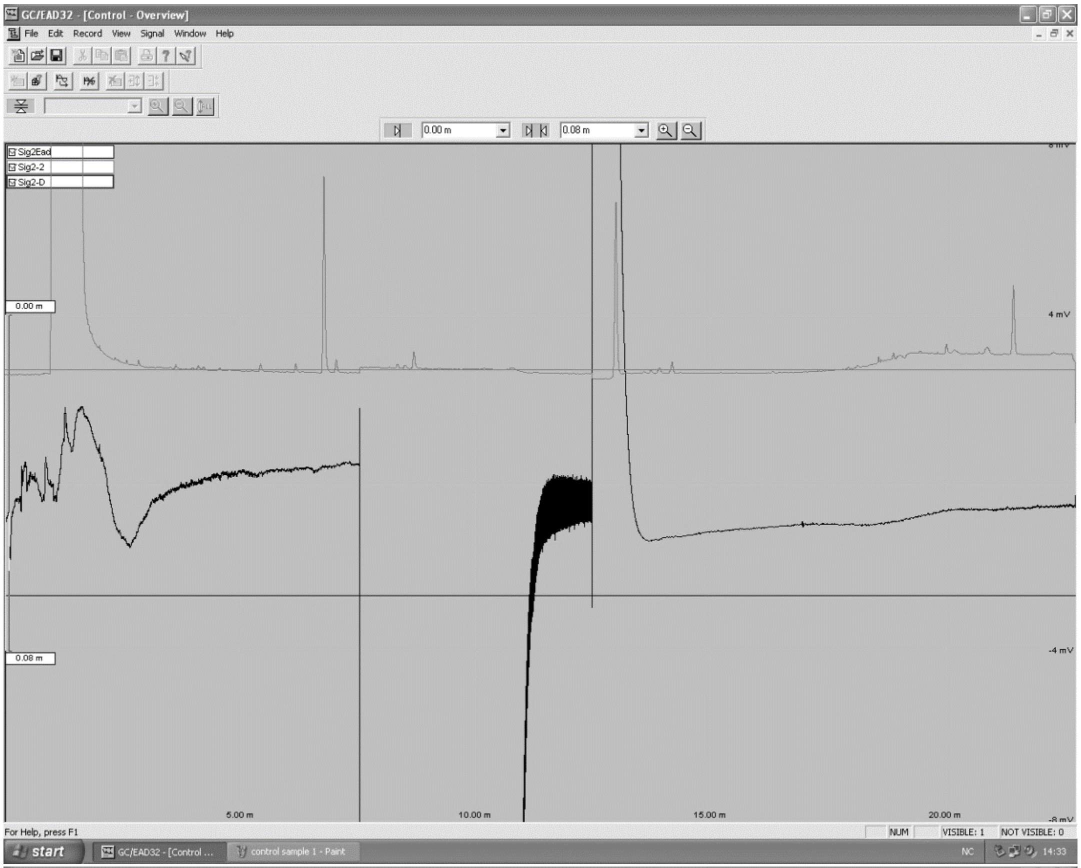
MSD Deconvolution Report
Sample Name: 1432
Data File: C:\msdchem\1\DATA\Peter\Peter161115\2401018.D
Date/Time: 09:29:49 AM Wednesday, Nov 16 2016

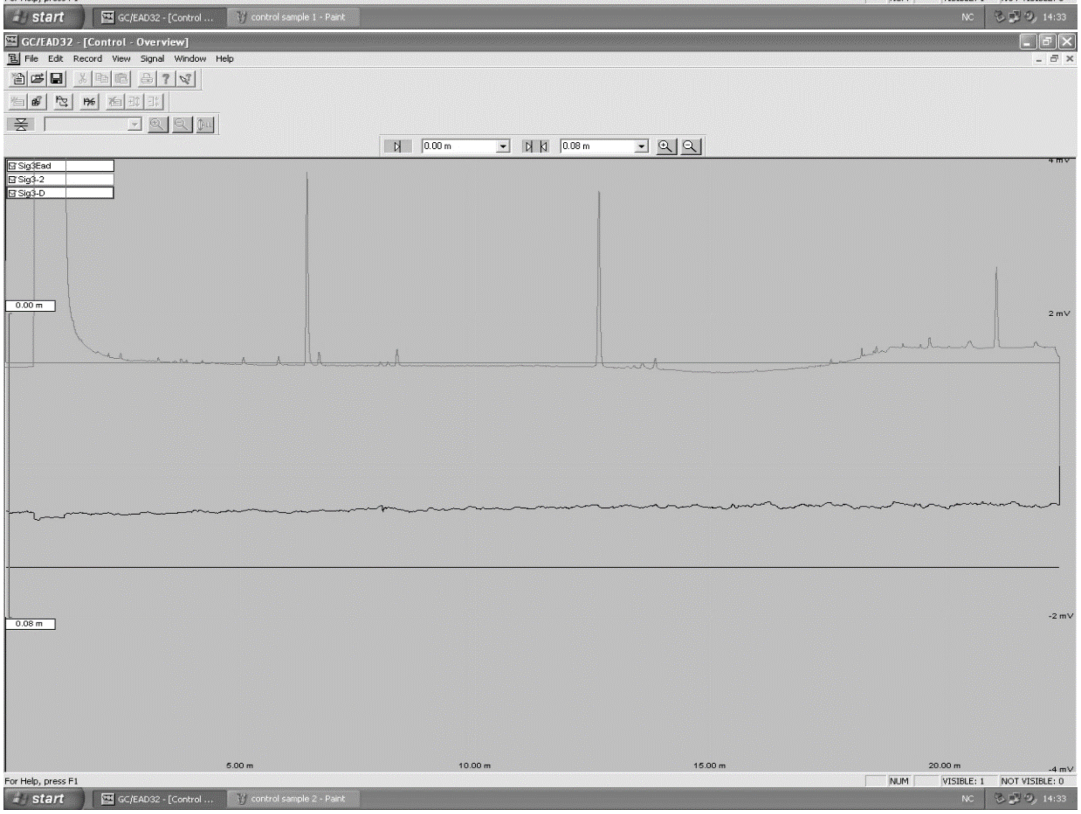
The NIST library was searched for the components that were found in the AMDIS target library.

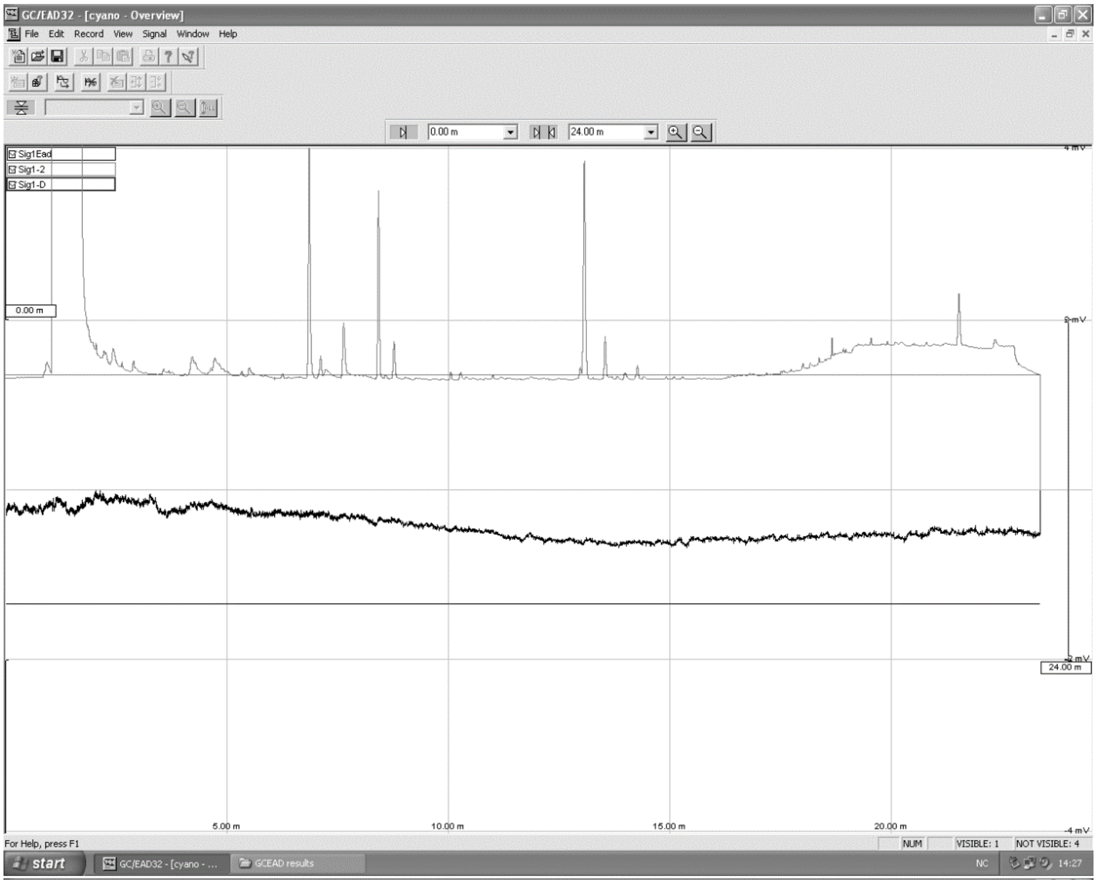
			Agilent	AMDIS		NIST	
R.T.	Cas #	Compound Name	ChemStation Amount (ng)	Match	R.T. Diff sec.	Reverse Match	Hit Num.
4.6102	589388	3-Hexanon		76	4.0	82	1
5.0931	591786	2-Hexanone		87	3.5	81	2
10.7113	112061	Heptylacetat (RT LOCK)	0.5	99	-0.5	95	1
11.0544	124196	Nonanal (Pelargonaldehyd)		88	-3.8	88	1
13.0045	112312	Decanal		88	-4.5	91	1
17.8458	1731813	Undecylacetate (ISTD)		99	-3.4		
17.8458	112425	1-Undecanol				93	1
23.1696	A71IYV~1N1 002	Phthalic acid, cyclobutyl ethyl ester		72			
23.1696	84662	Diethyl Phthalate				78	1

Appendix 5

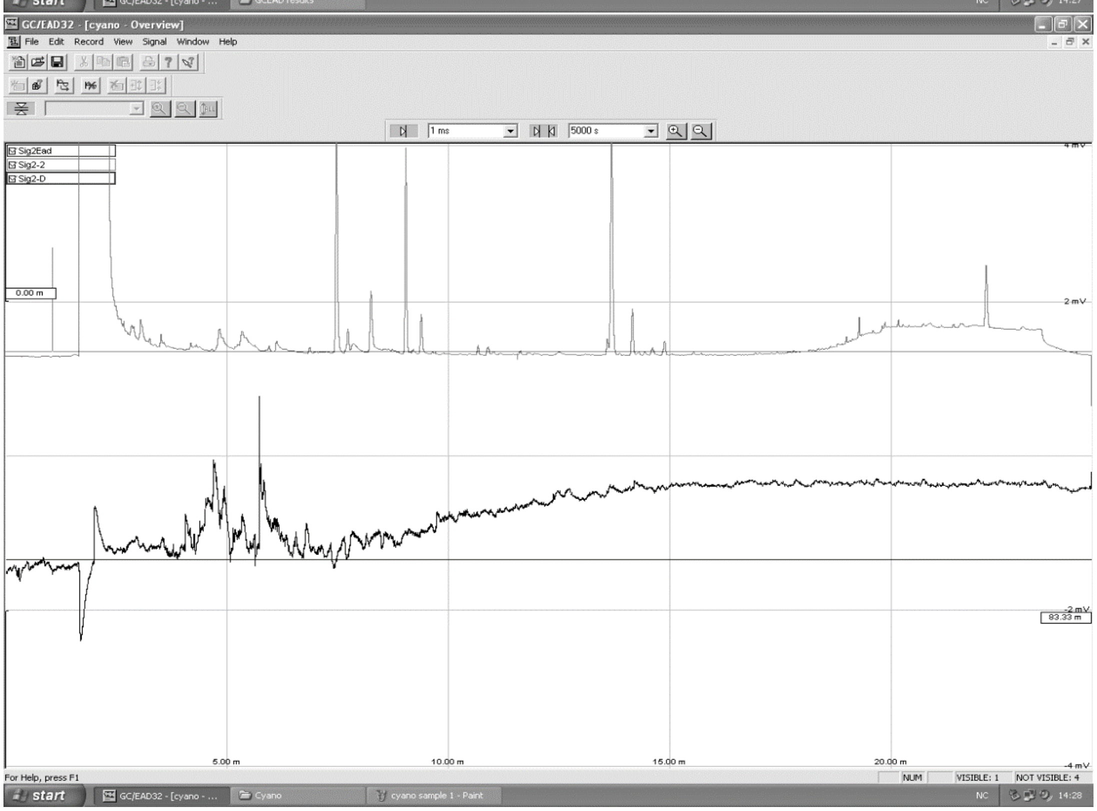

GC/EAD32 - [Control - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig1 Ead
Sig1 -2
Sig1 -D
4 mV
2 mV
-2 mV
-4 mV
5.00 m
10.00 m
15.00 m
20.00 m
For Help, press F1
NUM
VISIBLE: 0
NOT VISIBLE: 0
start
GC/EAD32 - [Control ...
Cyano
Garlic sample 5 - Paint
NC
14:32


GC/EAD32 - [Control - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig2Ead
Sig2-2
Sig2-D
0.00 m
4 mV
0.08 m
-4 mV
5.00 m
10.00 m
15.00 m
20.00 m
-8 mV
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [Control ...
control sample 1 - Paint
NC
14:33

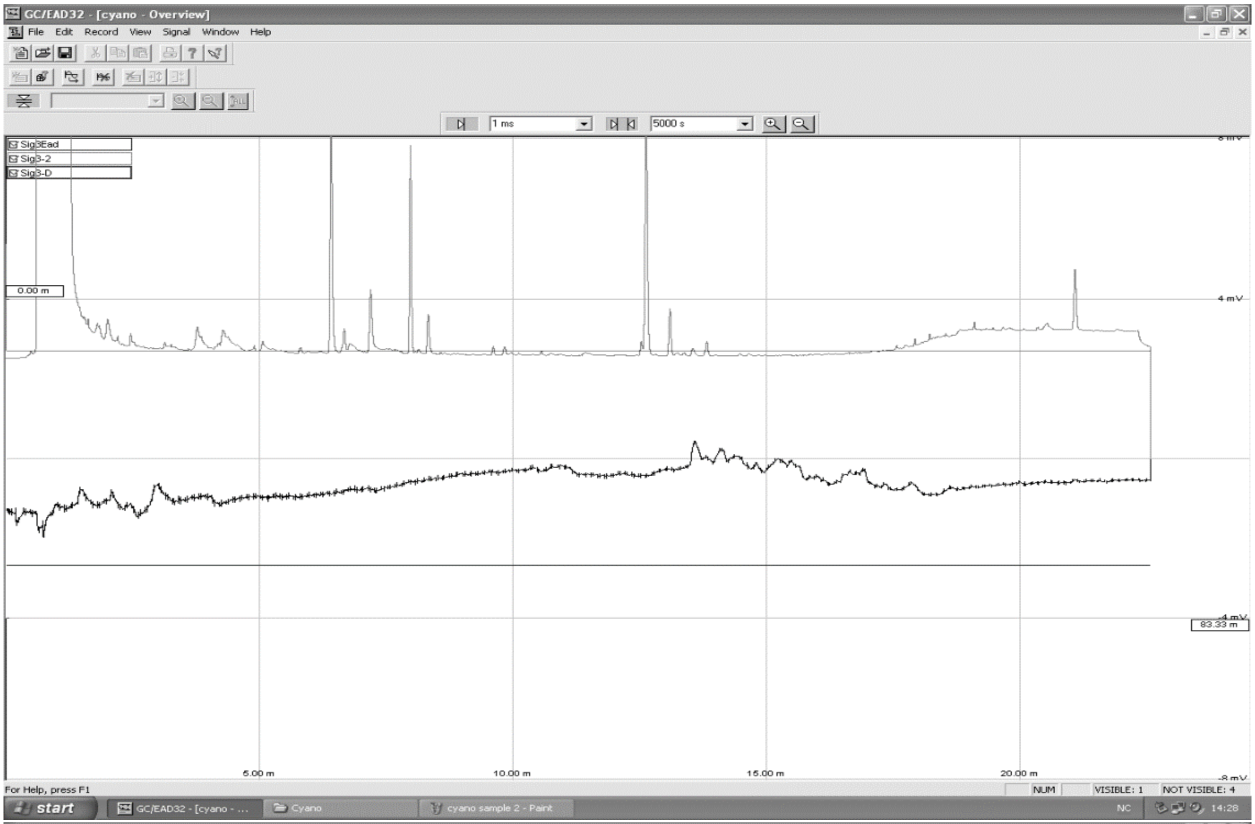

GC/EAD32 - [Control - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig3Ead
Sig3-2
Sig3-D
0.00 m
2 mV
0.08 m
-2 mV
5.00 m
10.00 m
15.00 m
20.00 m
-4 mV
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [Control ...
control sample 2 - Paint
NC
14:33

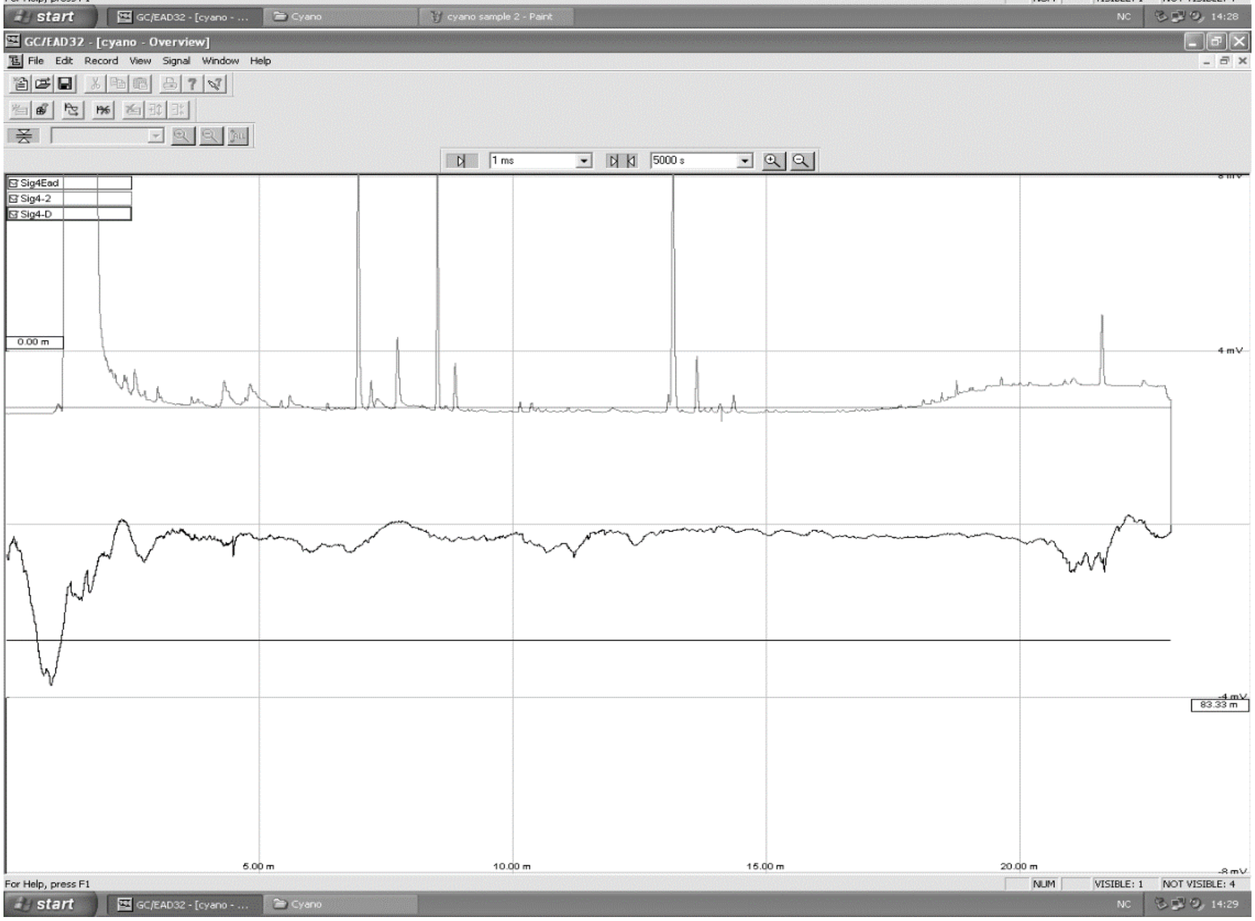


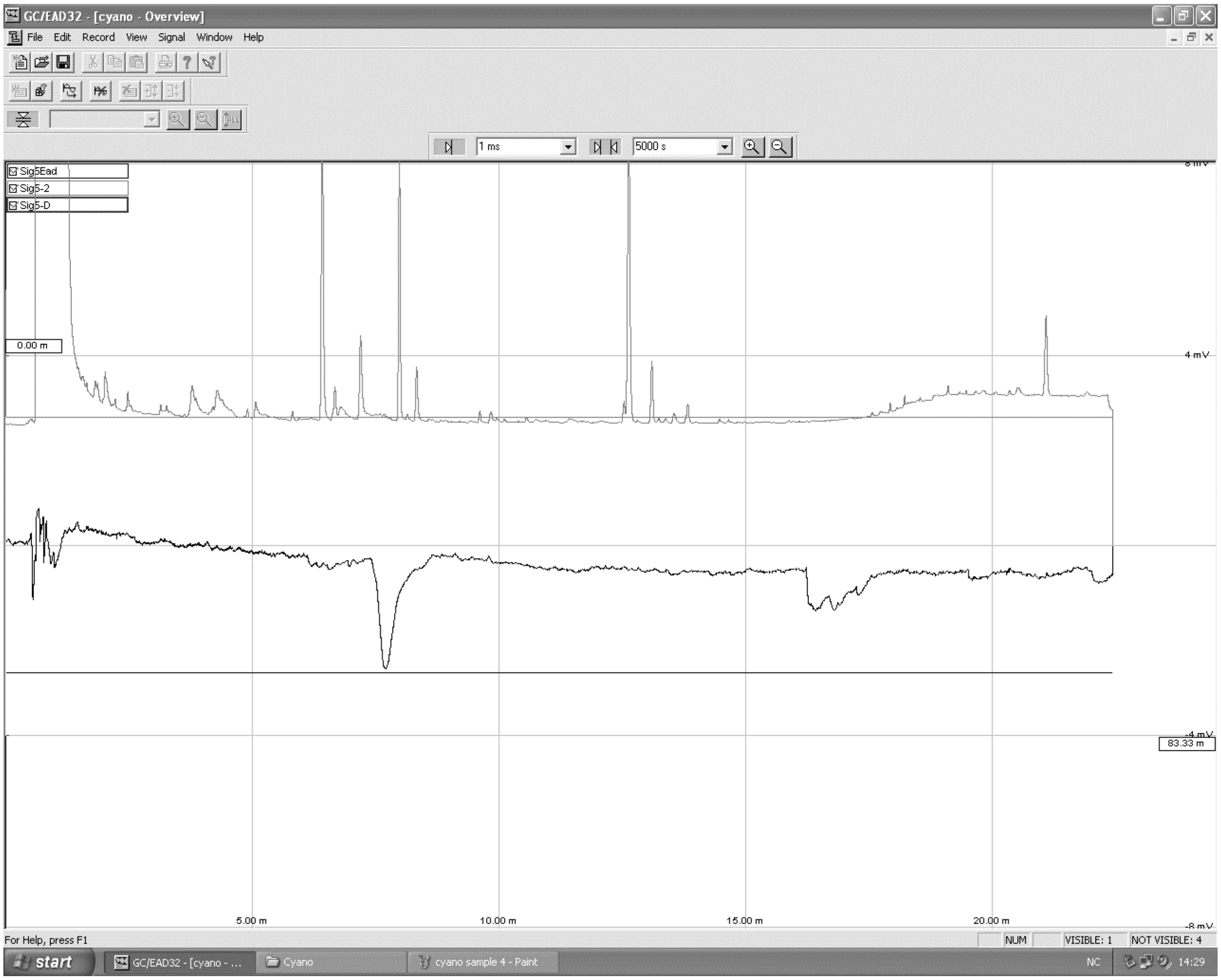
GC/EAD32 - [cyano - Overview]
File Edit Record View Signal Window Help
0.00 m
24.00 m
Sig1Ead
Sig1-2
Sig1-D
5.00 m
10.00 m
15.00 m
20.00 m
2 mV
-4 mV
For Help, press F1
NUM VISIBLE: 1 NOT VISIBLE: 4
start
GC/EAD32 - [cyano - ...
GCEAD results
14:27

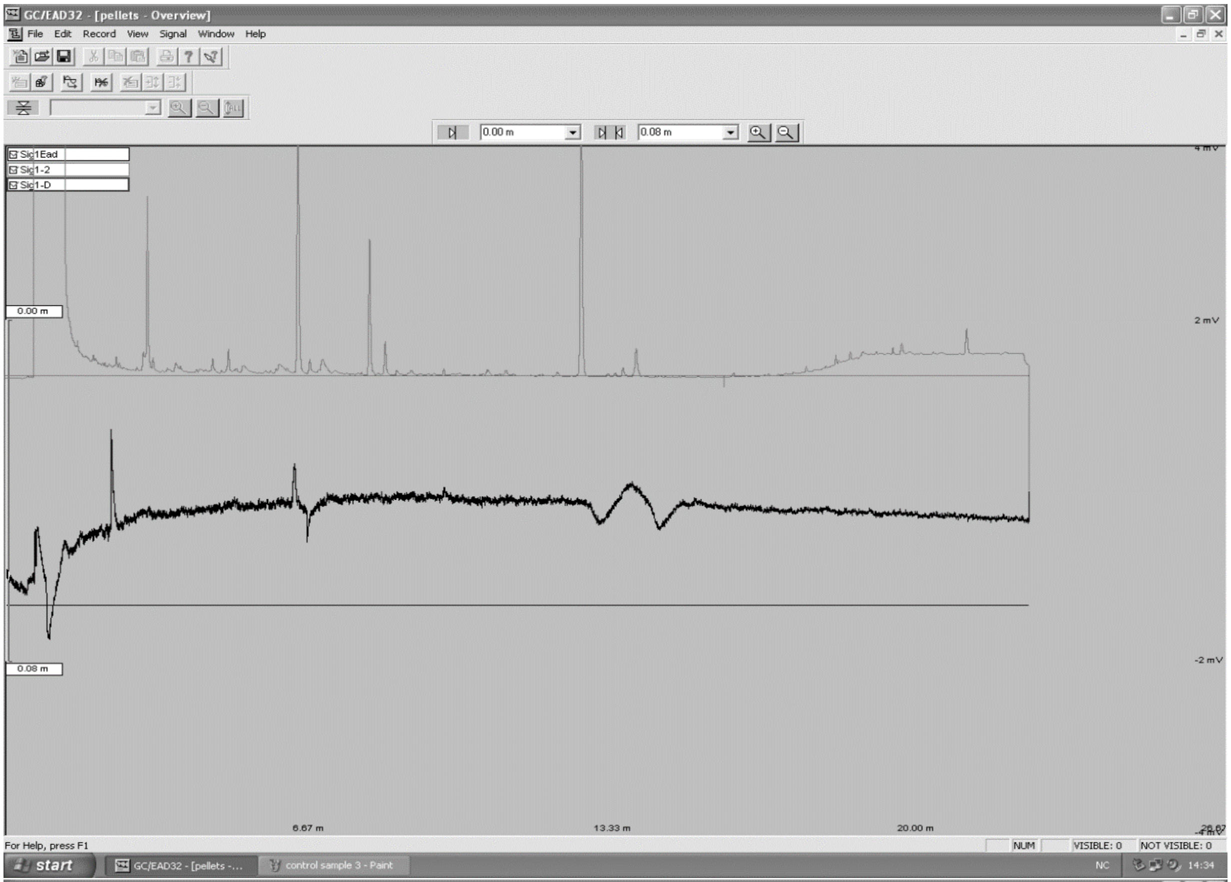


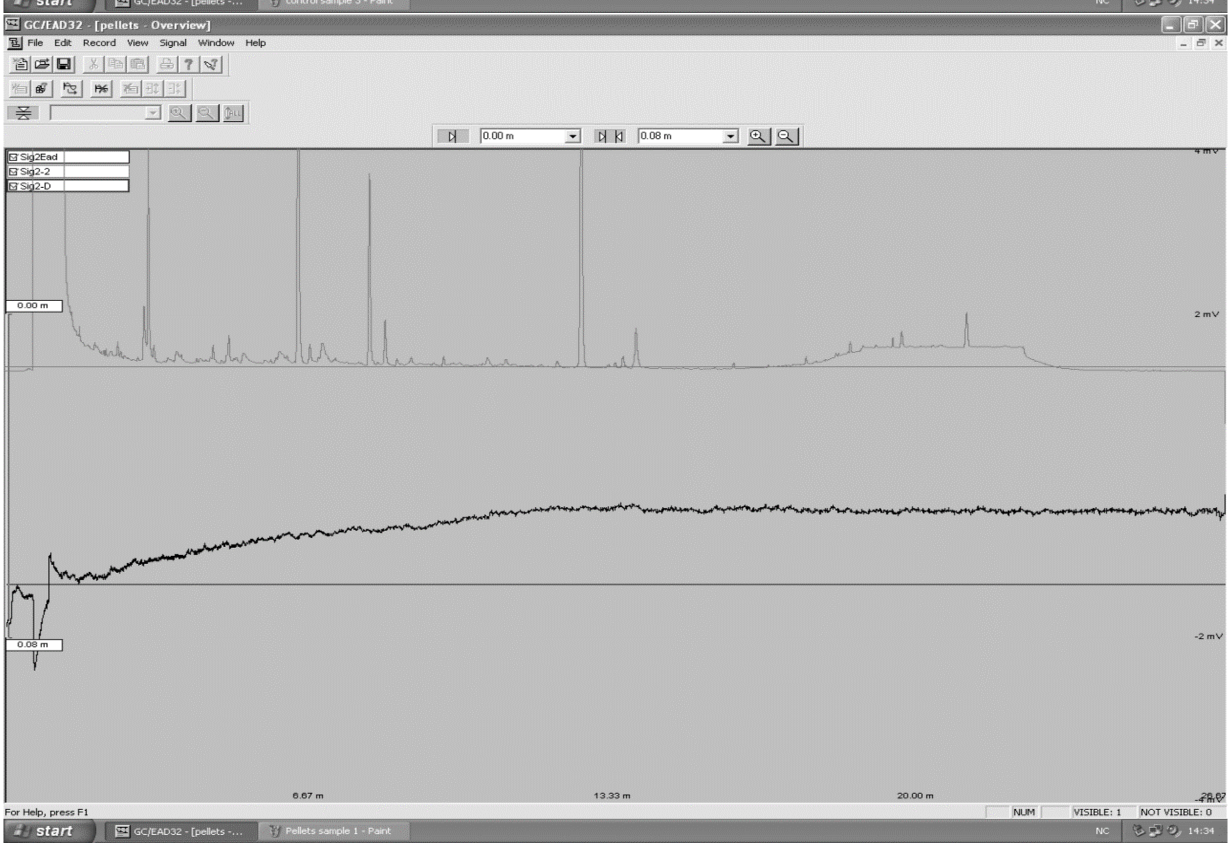
GC/EAD32 - [cyano - Overview]
File Edit Record View Signal Window Help
1 ms
5000 s
Sig2Ead
Sig2-2
Sig2-D
0.00 m
83.33 m
5.00 m
10.00 m
15.00 m
20.00 m
2 mV
-2 mV
-4 mV
For Help, press F1
NUM VISIBLE: 1 NOT VISIBLE: 4
start
GC/EAD32 - [cyano - ...
Cyano
cyano sample 1 - Paint
14:28

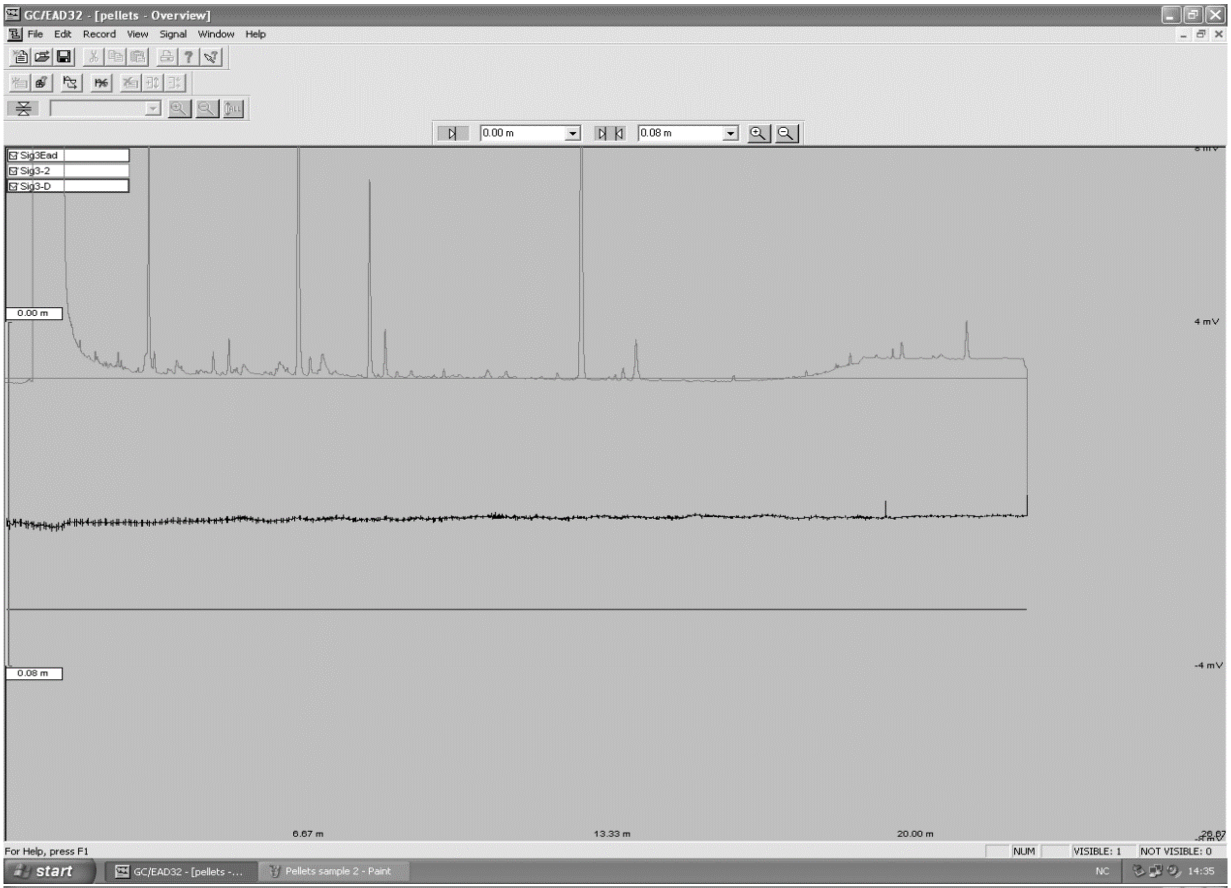

GC/EAD32 - [cyano - Overview]
File Edit Record View Signal Window Help
1 ms
5000 s
Sig3Ead
Sig3-2
Sig3-D
0.00 m
4 mV
-4 mV
83.33 m
-8 mV
5.00 m
10.00 m
15.00 m
20.00 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 4
start
GC/EAD32 - [cyano - ...
Cyano
cyano sample 2 - Paint
NC
14:28

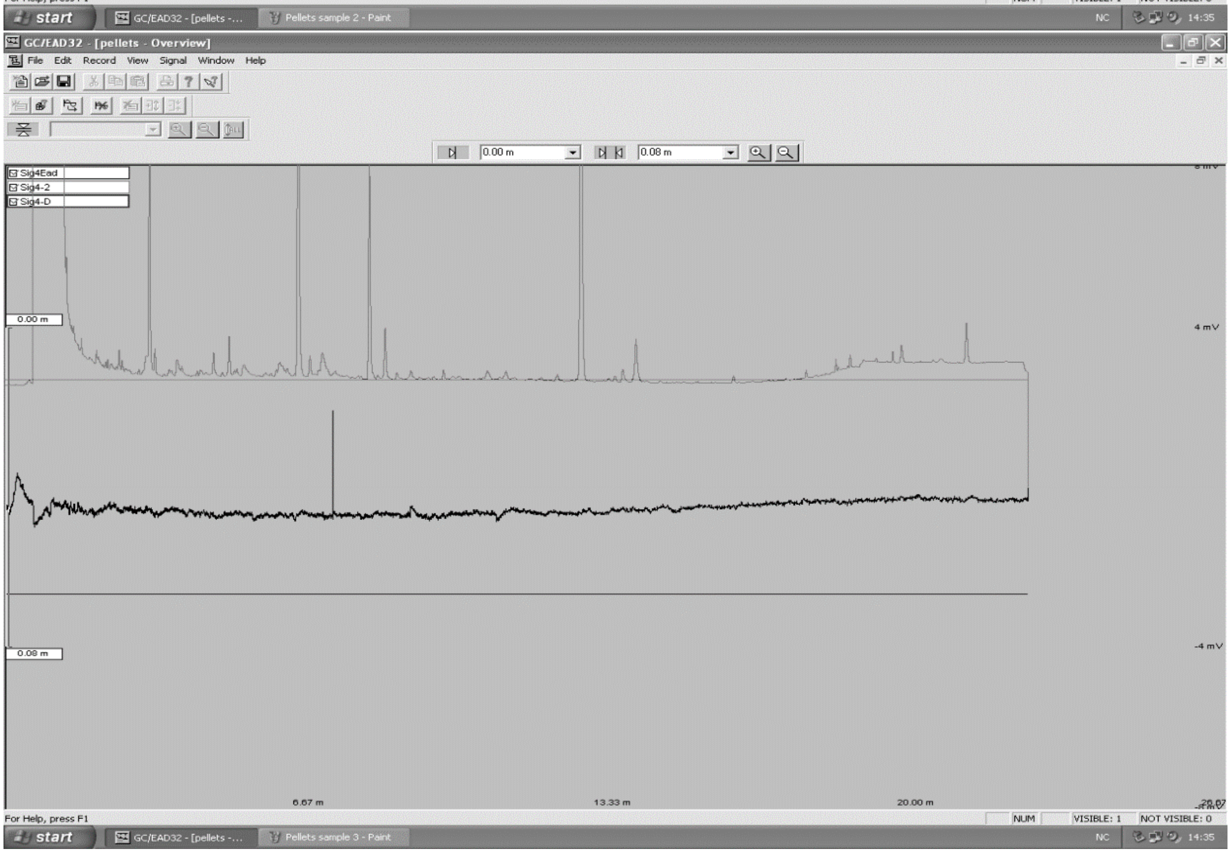

GC/EAD32 - [cyano - Overview]
File Edit Record View Signal Window Help
1 ms
5000 s
Sig4Ead
Sig4-2
Sig4-D
0.00 m
4 mV
-4 mV
83.33 m
-8 mV
5.00 m
10.00 m
15.00 m
20.00 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 4
start
GC/EAD32 - [cyano - ...
Cyano
NC
14:29

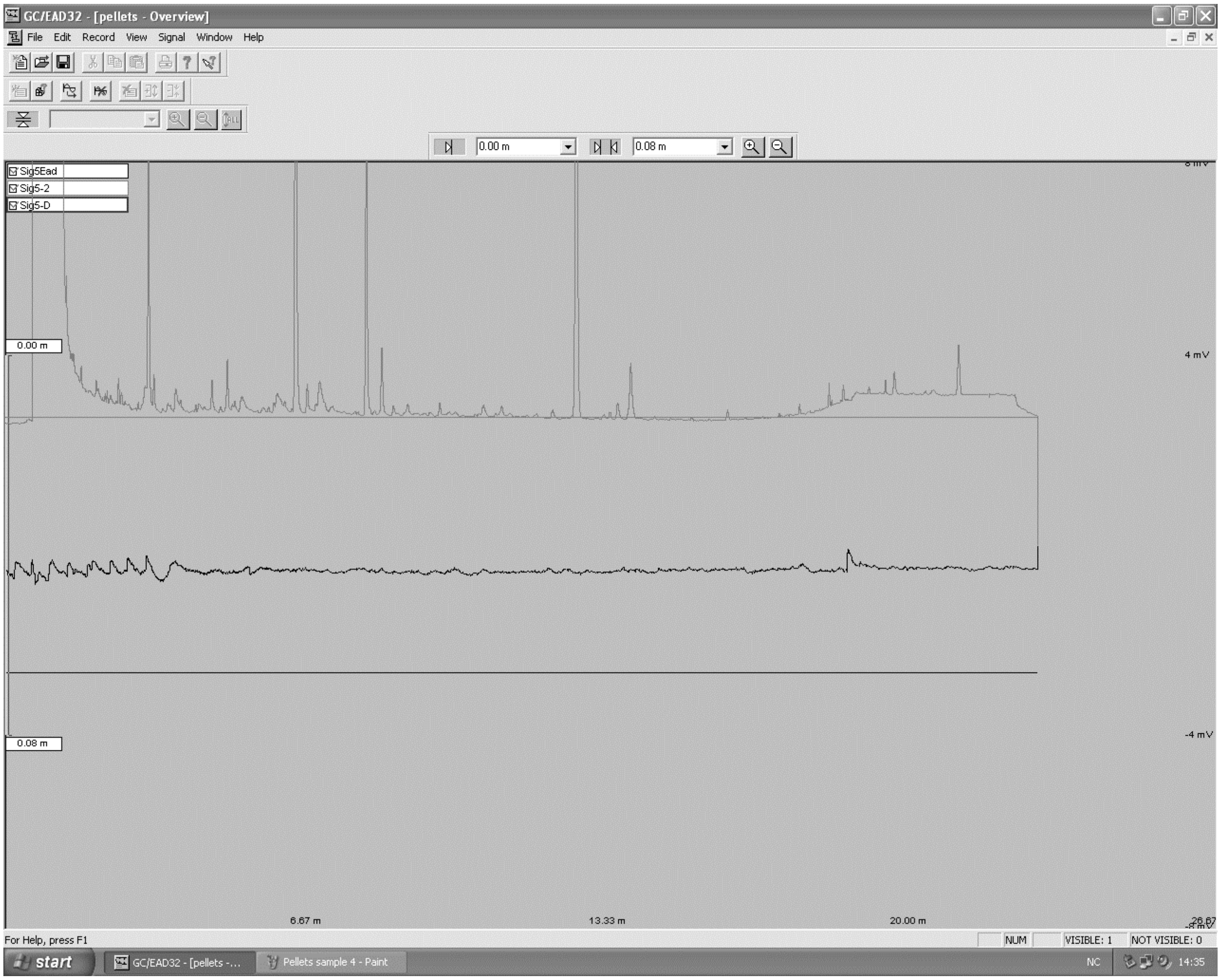

GC/EAD32 - [cyano - Overview]
File Edit Record View Signal Window Help
1 ms
5000 s
Sig5Ead
Sig5-2
Sig5-D
0.00 m
4 mV
-4 mV
83.33 m
-8 mV
5.00 m
10.00 m
15.00 m
20.00 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 4
start
GC/EAD32 - [cyano - ...
Cyano
cyano sample 4 - Paint
NC
14:29

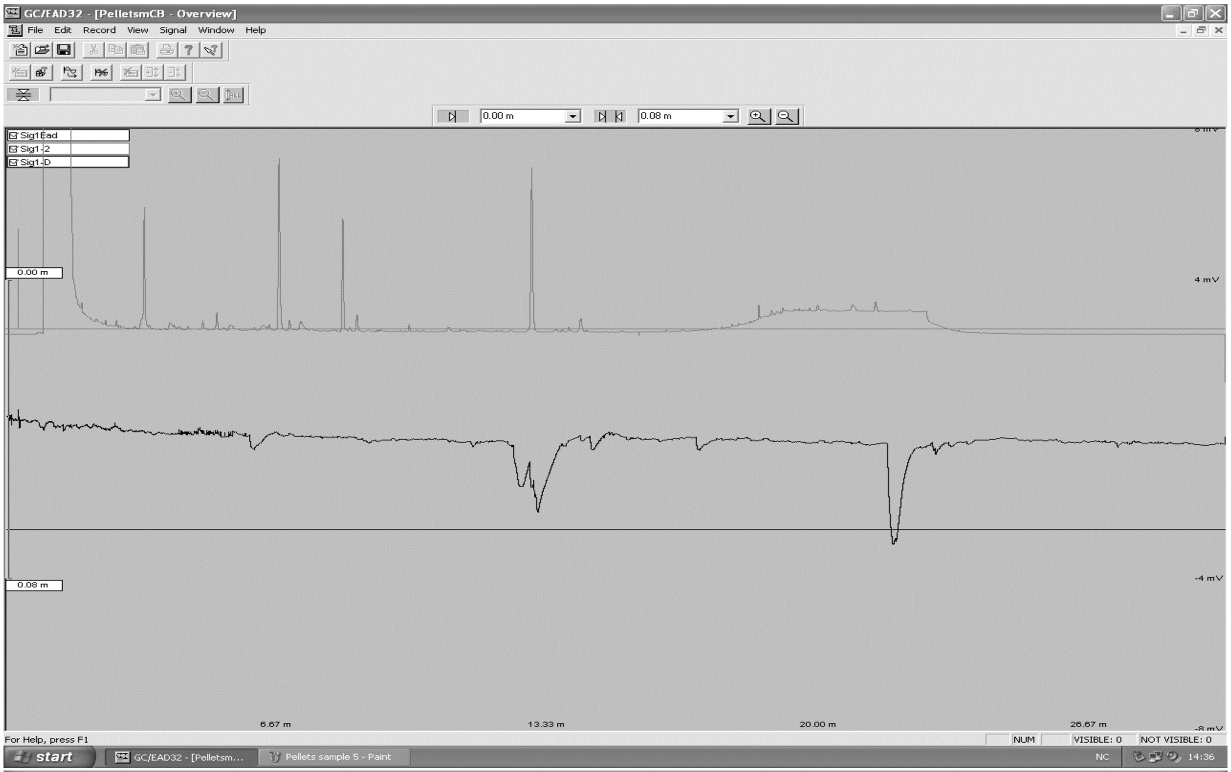

GC/EAD32 - [pellets - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig1Ead
Sig1-2
Sig1-D
4 mV
2 mV
-2 mV
6.67 m
13.33 m
20.00 m
For Help, press F1
NUM
VISIBLE: 0
NOT VISIBLE: 0
start
GC/EAD32 - [pellets -...
control sample 3 - Paint
NC
14:34

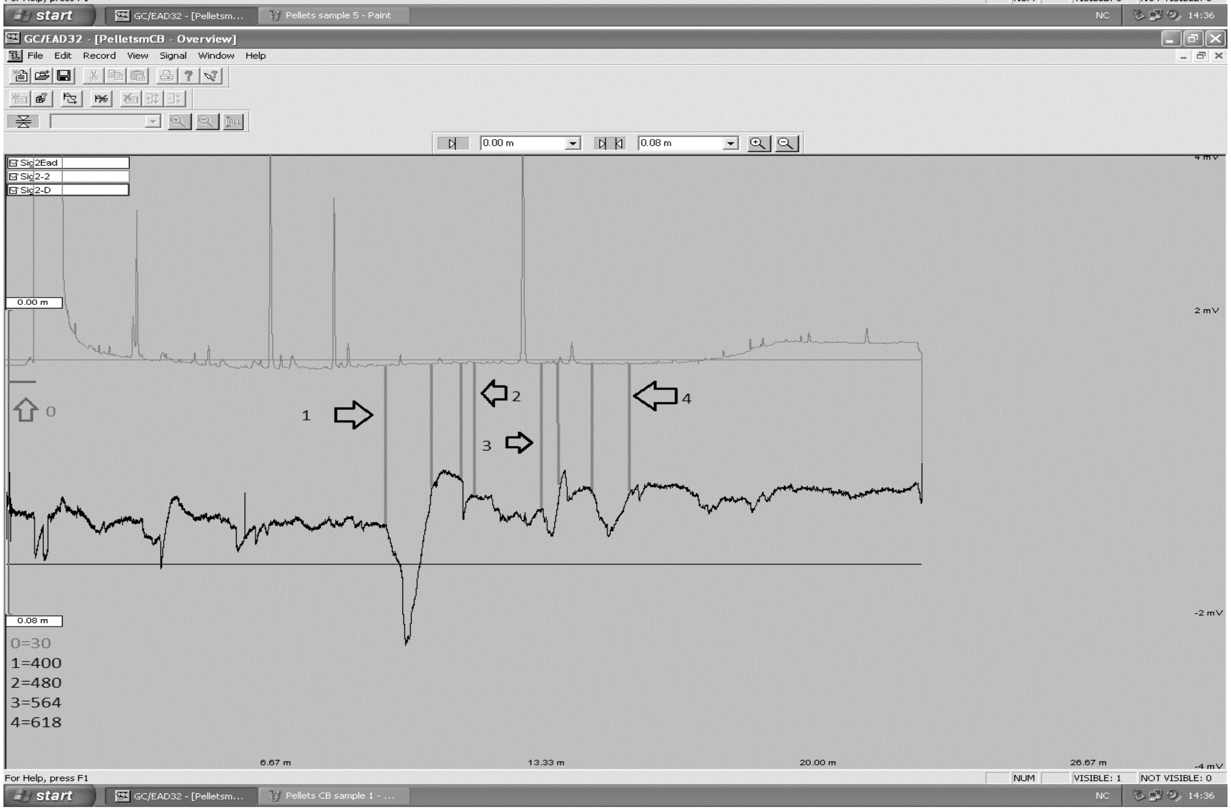

GC/EAD32 - [pellets - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig2Ead
Sig2-2
Sig2-D
4 mV
2 mV
-2 mV
6.67 m
13.33 m
20.00 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [pellets -...
Pellets sample 1 - Paint
NC
14:34

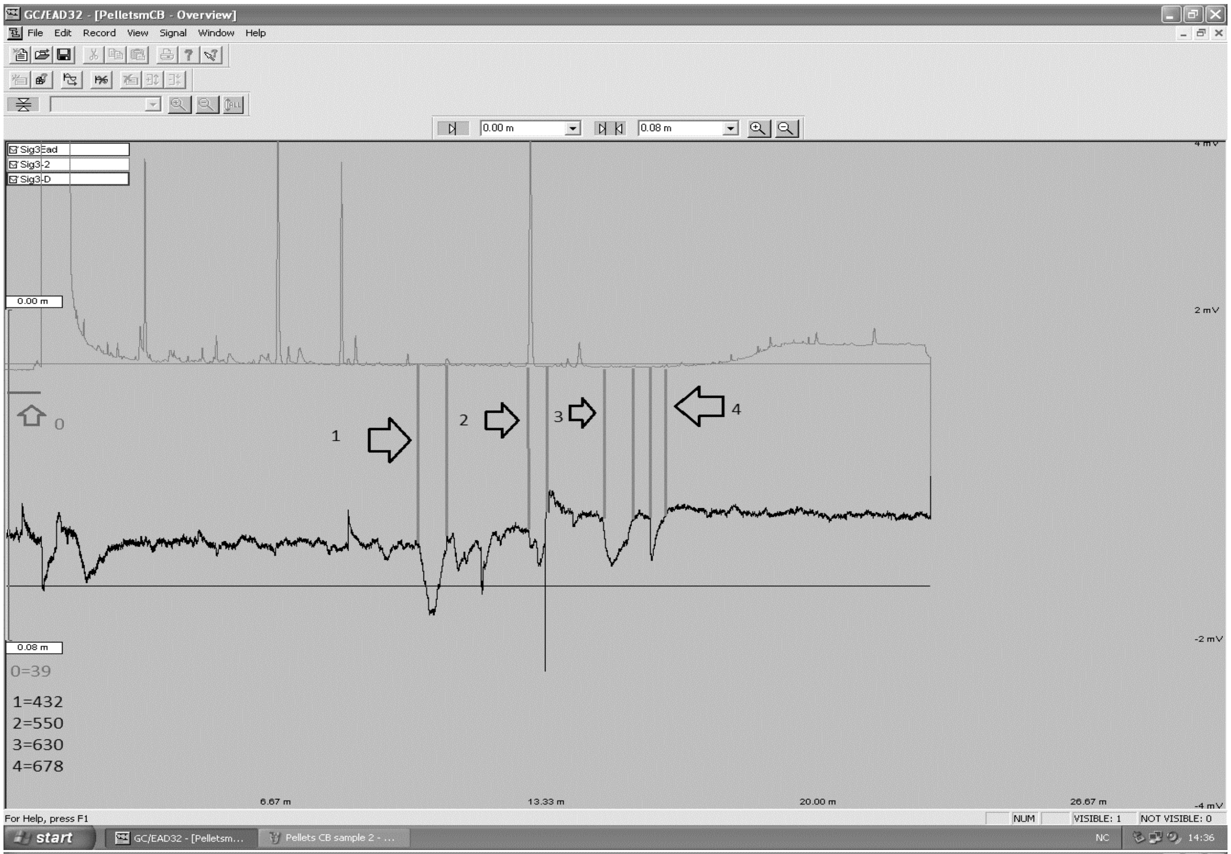

GC/EAD32 - [pellets - Overview]
File Edit Record View Signal Window Help
Sig3Ead
Sig3-2
Sig3-D
0.00 m
0.08 m
4 mV
-4 mV
6.67 m
13.33 m
20.00 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
Pellets sample 2 - Paint
14:35

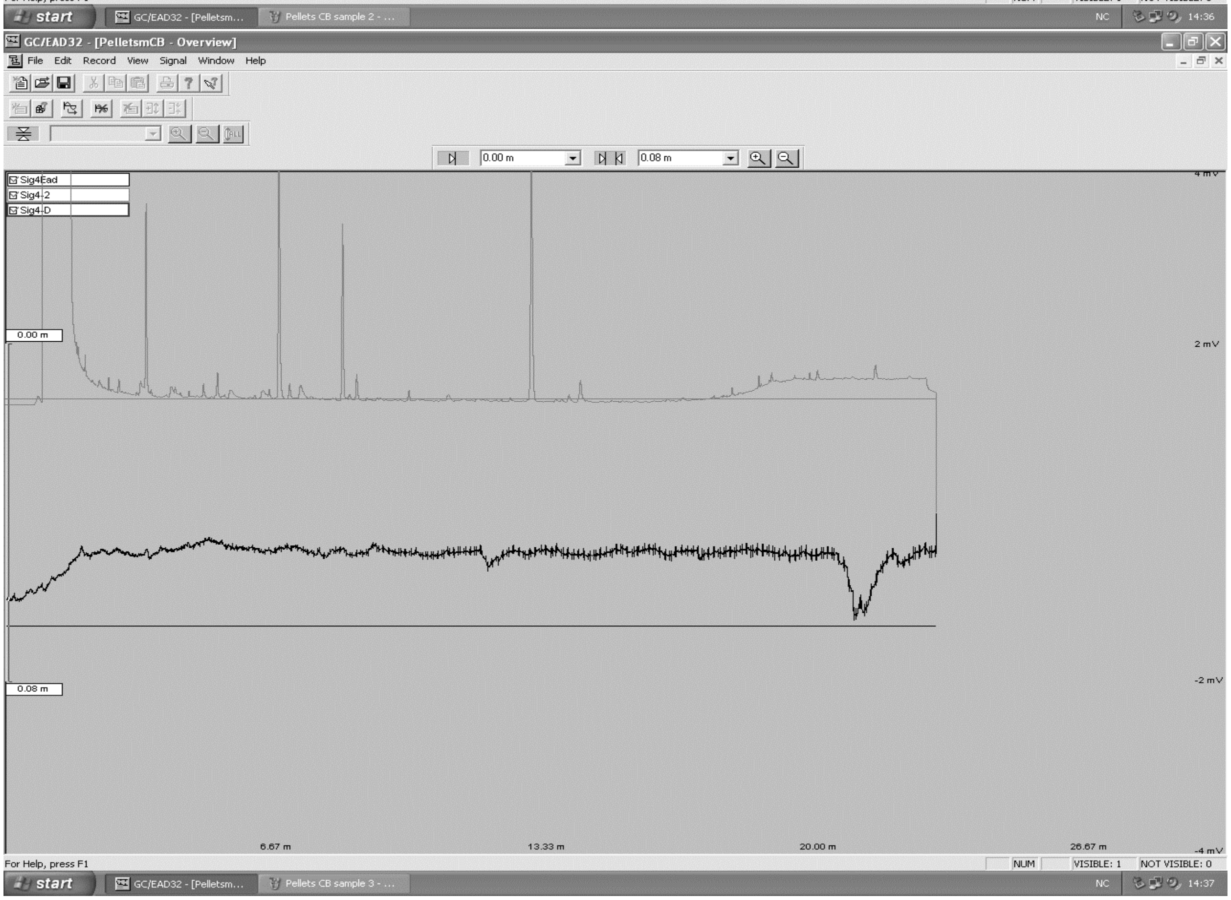

GC/EAD32 - [pellets - Overview]
File Edit Record View Signal Window Help
Sig4Ead
Sig4-2
Sig4-D
0.00 m
0.08 m
4 mV
-4 mV
6.67 m
13.33 m
20.00 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
Pellets sample 3 - Paint
14:35

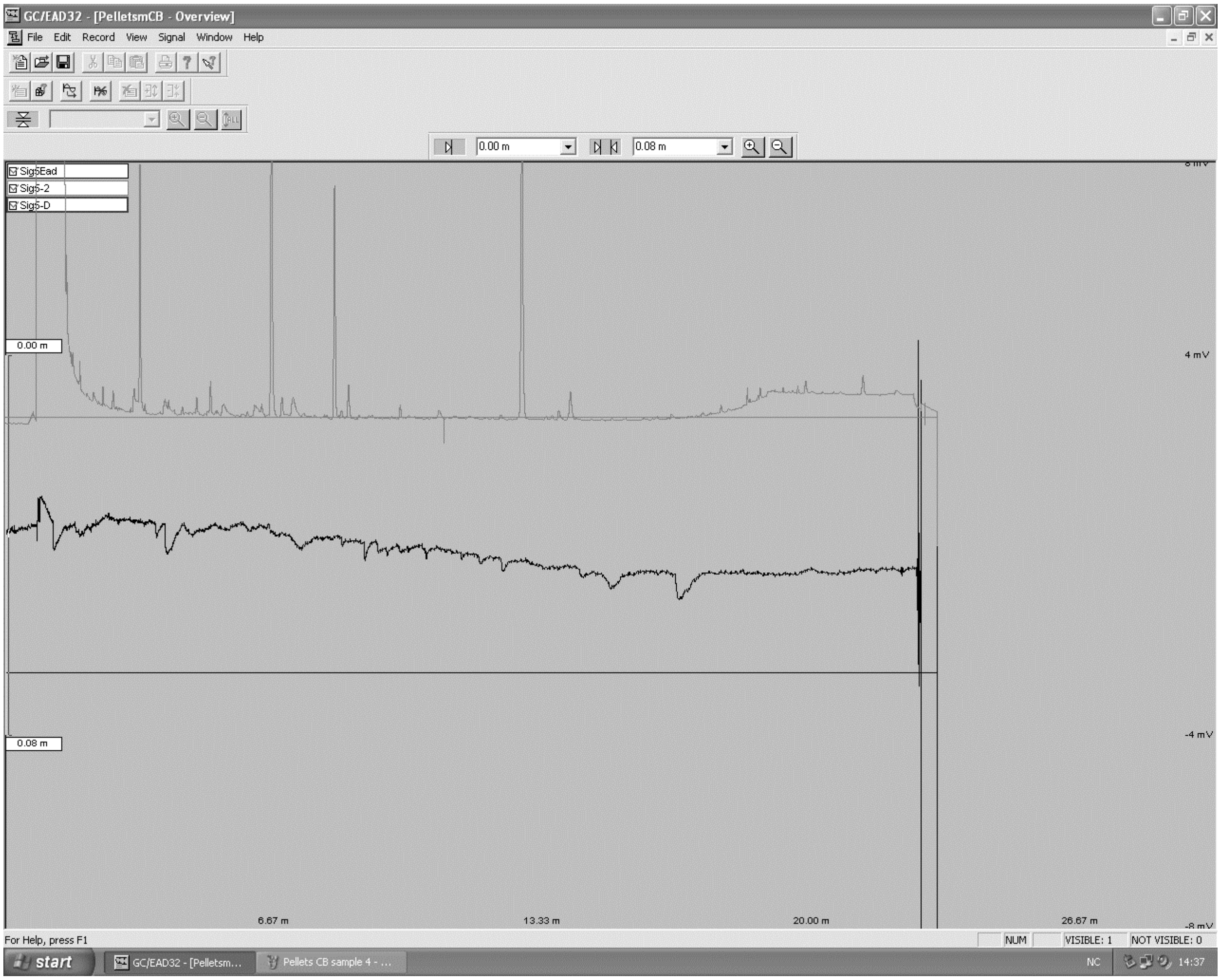

GC/EAD32 - [pellets - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig5Ead
Sig5-2
Sig5-D
0.00 m
4 mV
0.08 m
-4 mV
6.67 m
13.33 m
20.00 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [pellets -...
Pellets sample 4 - Paint
NC
14:35


GC/EAD32 - [PelletsmCB - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig1Ead
Sig1-2
Sig1-D
4 mV
-4 mV
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 0
NOT VISIBLE: 0
start
GC/EAD32 - [Pelletsm...
Pellets sample 5 - Paint
14:36

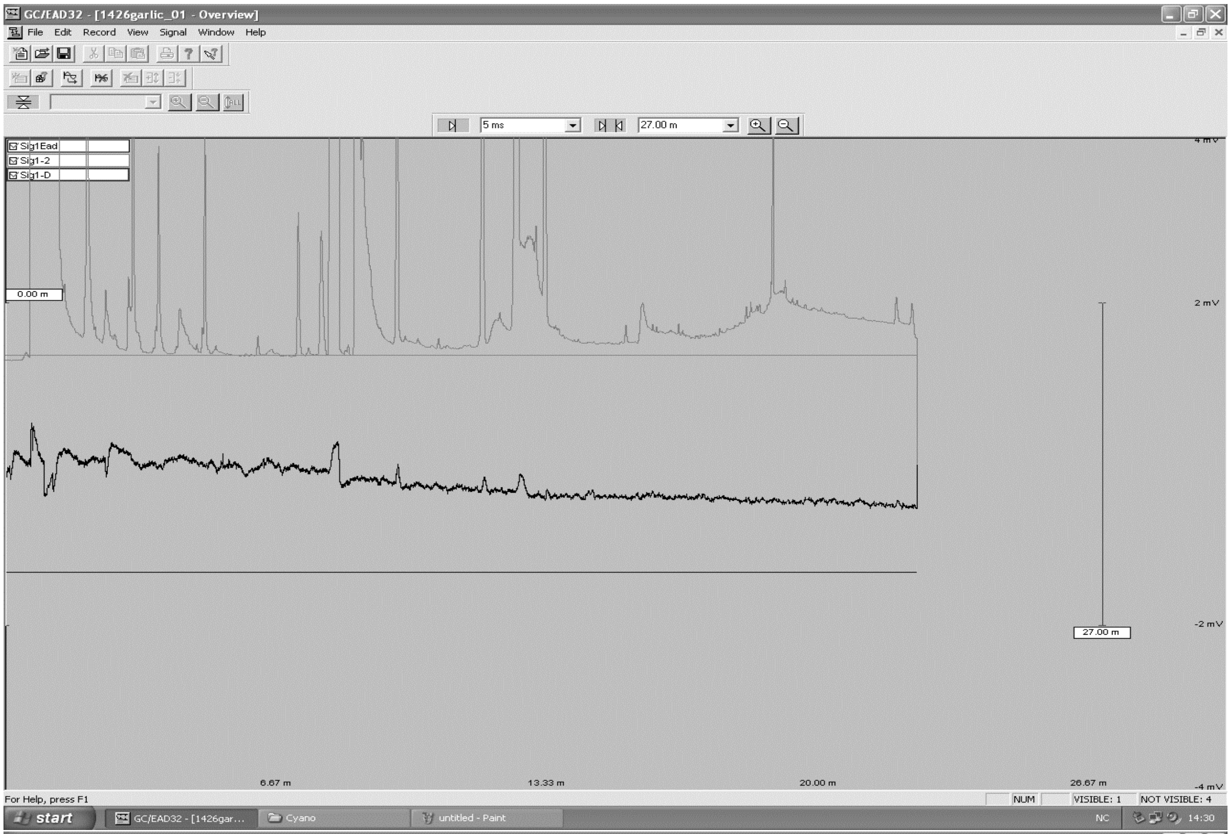

GC/EAD32 - [PelletsmCB - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig2Ead
Sig2-2
Sig2-D
2 mV
-2 mV
0
1
2
3
4
0=30
1=400
2=480
3=564
4=618
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [Pelletsm...
Pellets CB sample 1 - ...
14:36

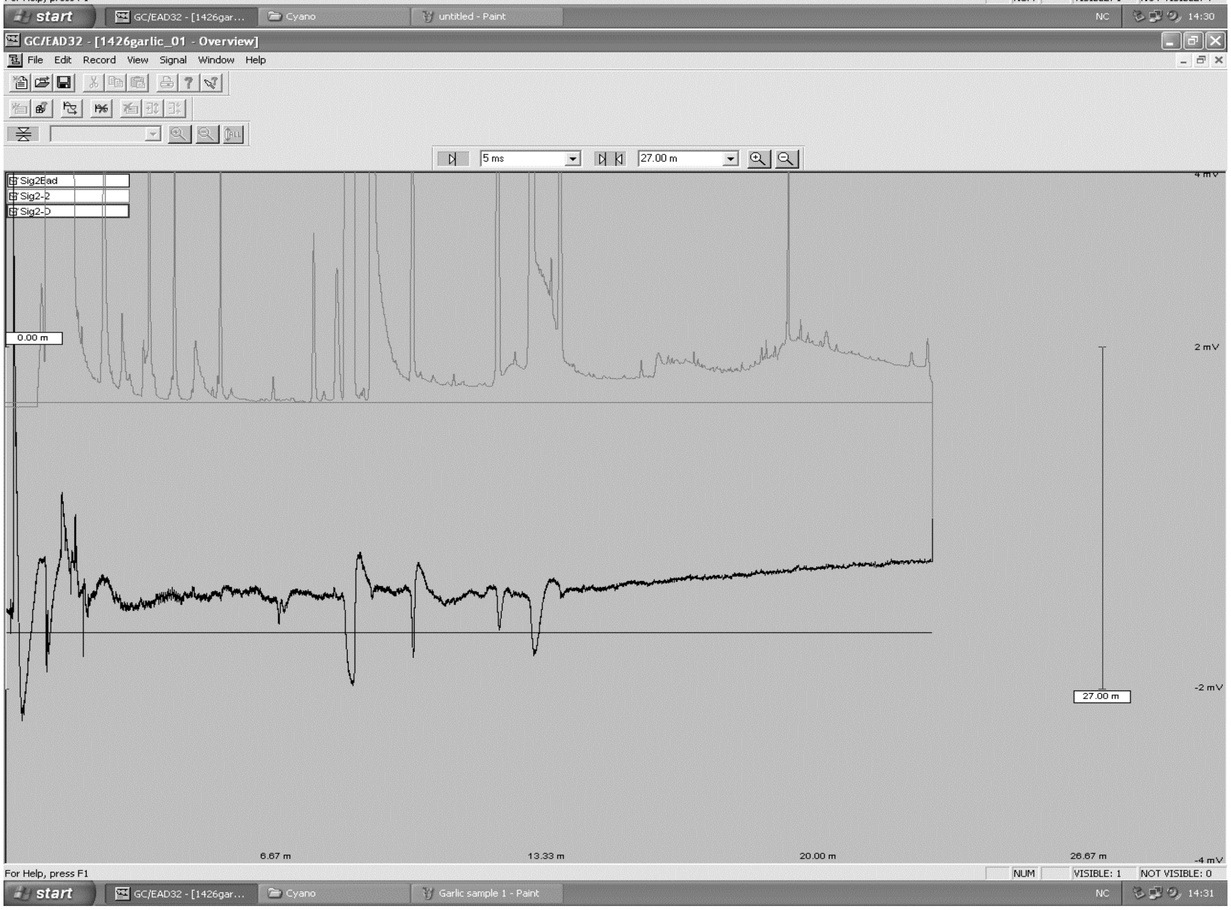

GC/EAD32 - [PelletsmCB - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig3Ead
Sig3-2
Sig3-D
0.00 m
2 mV
0
1
2
3
4
0.08 m
-2 mV
0=39
1=432
2=550
3=630
4=678
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [Pelletsm...
Pellets CB sample 2 - ...
14:36

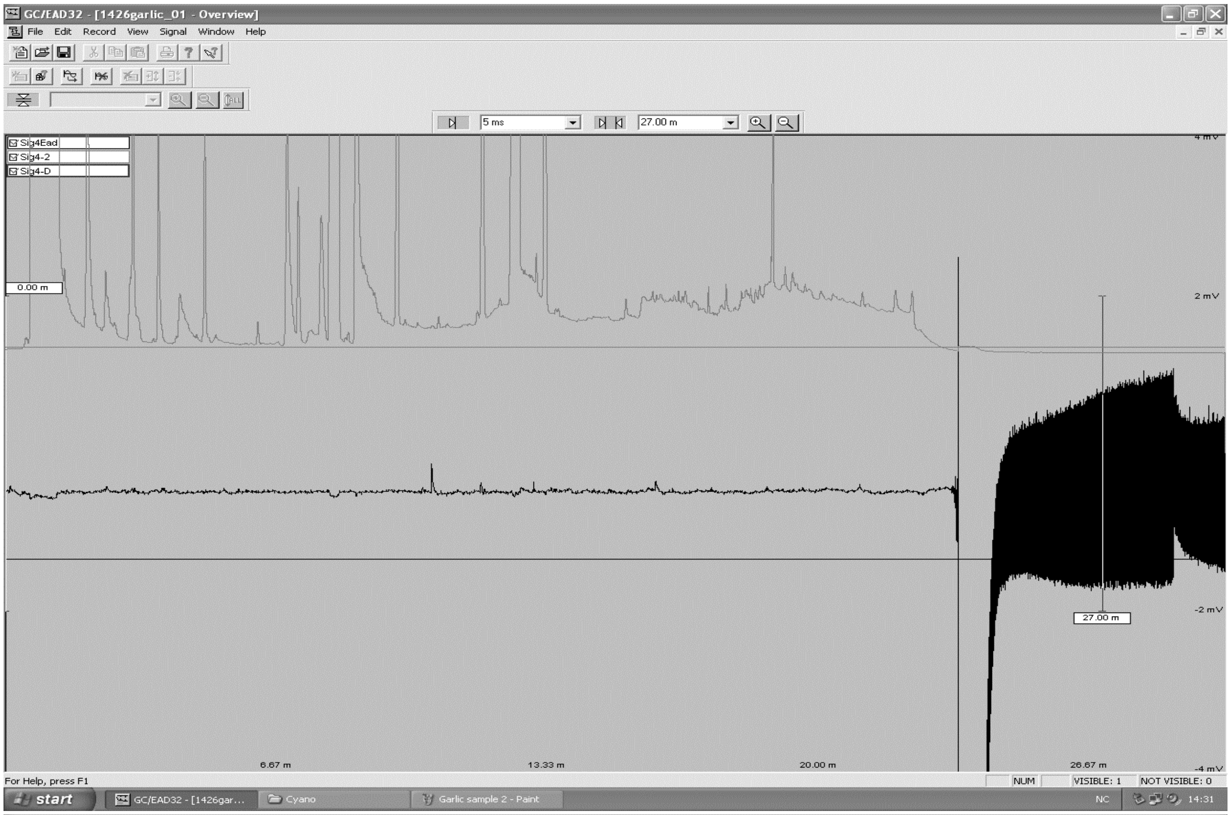

GC/EAD32 - [PelletsmCB - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig4Ead
Sig4-2
Sig4-D
0.00 m
2 mV
0.08 m
-2 mV
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [Pelletsm...
Pellets CB sample 3 - ...
14:37



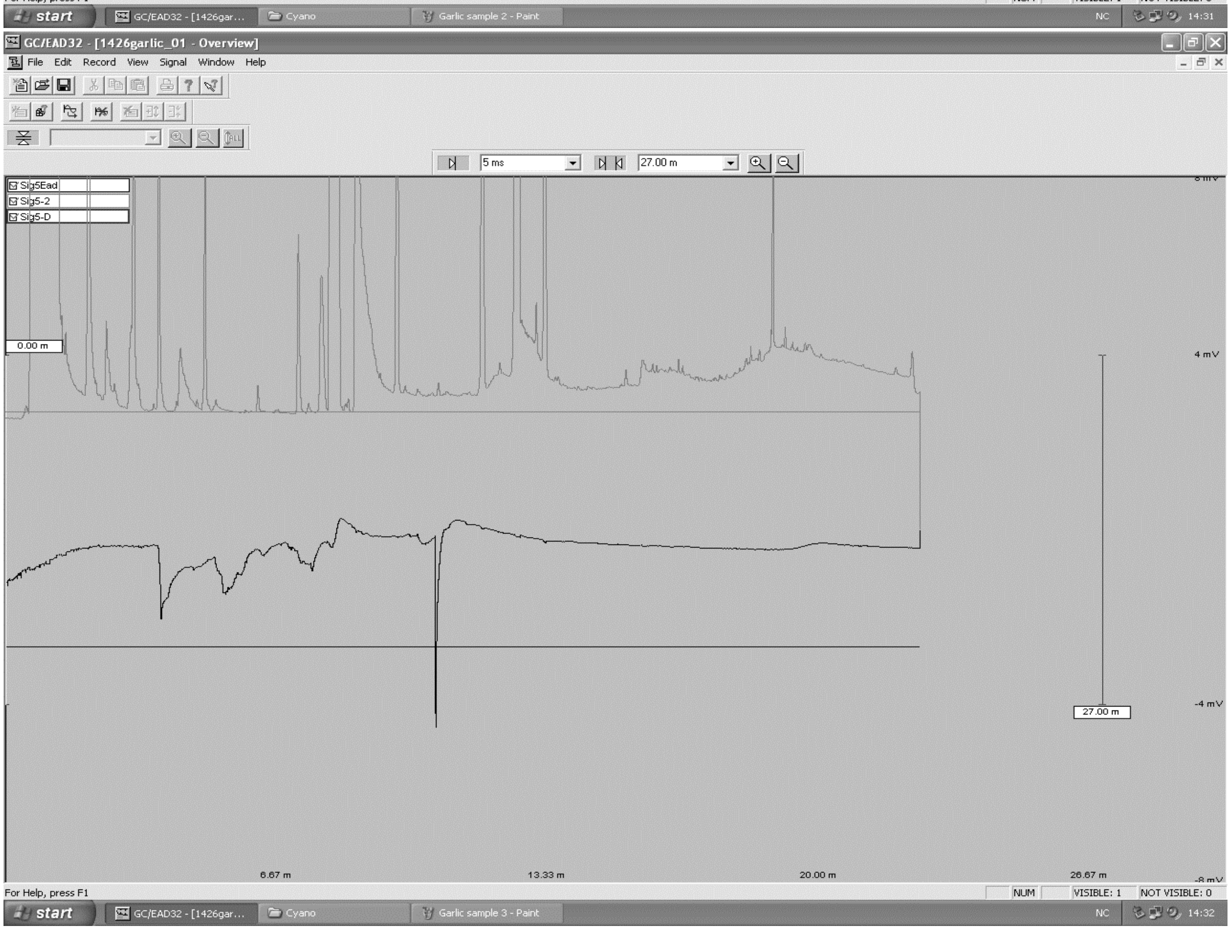
GC/EAD32 - [PelletsmCB - Overview]
File Edit Record View Signal Window Help
0.00 m
0.08 m
Sig5Ead
Sig5-2
Sig5-D
0.00 m
4 mV
0.08 m
-4 mV
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [Pelletsm...
Pellets CB sample 4 - ...
NC
14:37


GC/EAD32 - [1426garlic_01 - Overview]
File Edit Record View Signal Window Help
Sig1Ead
Sig1-2
Sig1-D
0.00 m
27.00 m
4 mV
2 mV
-2 mV
-4 mV
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 4
start
Cyano
untitled - Paint
14:30

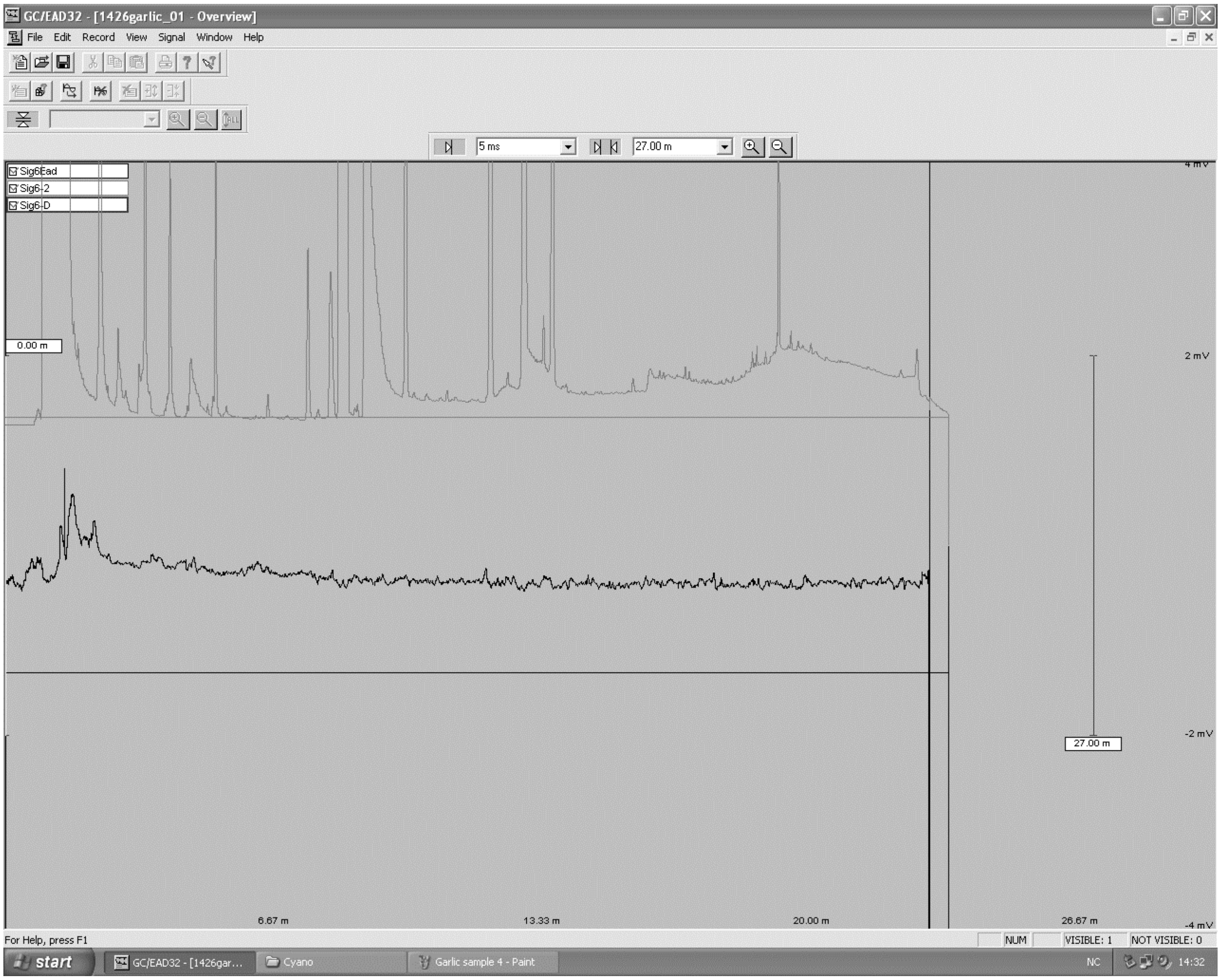

GC/EAD32 - [1426garlic_01 - Overview]
File Edit Record View Signal Window Help
Sig2Ead
Sig2-2
Sig2-D
0.00 m
27.00 m
4 mV
2 mV
-2 mV
-4 mV
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
Cyano
Garlic sample 1 - Paint
14:31



GC/EAD32 - [1426garlic_01 - Overview]
File Edit Record View Signal Window Help
5 ms
27.00 m
Sig4Ead
Sig4-2
Sig4-D
0.00 m
4 mV
2 mV
-2 mV
-4 mV
27.00 m
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [1426gar...
Cyano
Garlic sample 2 - Paint
NC
14:31



GC/EAD32 - [1426garlic_01 - Overview]
File Edit Record View Signal Window Help
5 ms
27.00 m
Sig5Ead
Sig5-2
Sig5-D
0.00 m
4 mV
-4 mV
-8 mV
27.00 m
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [1426gar...
Cyano
Garlic sample 3 - Paint
NC
14:32



GC/EAD32 - [1426garlic_01 - Overview]
File Edit Record View Signal Window Help
5 ms
27.00 m
Sig6Ead
Sig6-2
Sig6-D
0.00 m
4 mV
2 mV
-2 mV
-4 mV
27.00 m
6.67 m
13.33 m
20.00 m
26.67 m
For Help, press F1
NUM
VISIBLE: 1
NOT VISIBLE: 0
start
GC/EAD32 - [1426gar...
Cyano
Garlic sample 4 - Paint
NC
14:32

Appendix 6

FileName	CAS	Name	RT
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	7785-26-4	Alfa-Pinene	4.1624
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	592-88-1	Allyl sulfide	6.2477
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9274
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8023
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	629-50-5	Tridecane	9.4786
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7259
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	54833-48-6		10.7259
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	15796-04-0	2,4,4,6,6,8,8-Heptamethyl-1-nonene	11.6454
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	2179-57-9	Allyl di sulfide	12.599
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	1124-11-4	Pyrazine, tetramethyl-	12.6454
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9104
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	100-52-7	Benzaldehyde	13.3329
C:\msdchem\1\DATA\Peter\Peter161115\0201002.FIN	1731-81-3	Undecylacetate (ISTD)	17.8664
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	7785-26-4	Alfa-Pinene	4.1485
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	592-88-1	Allyl sulfide	6.2343
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9311
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	100-42-5	Styrene	8.3271
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7972
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	629-50-5	Tridecane	9.474
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.303
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7184
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0539
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	2179-57-9	Allyl di sulfide	12.5998
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9118
C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	100-52-7	Benzaldehyde	13.3272

C:\msdchem\1\DATA\Peter\Peter161115\0301003.FIN	1731-81-3	Undecylacetate (ISTD)	17.856
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	124-18-5	Decane	3.9527
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	7785-26-4	Alfa-Pinene	4.1683
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	112-40-3	Dodecane	4.5232
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	1120-21-4	Undecane	5.4057
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9234
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	3777-69-3	Furan, 2-pentyl-	7.9116
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	124-13-0	Octanal	9.042
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	629-50-5	Tridecane	9.4927
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.2994
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7283
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0626
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	629-59-4	Tetradecane	11.4116
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	1014-60-4	1,3-Di-tert-Butylbenzen	11.7259
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.914
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	112-31-2	Decanal	13.0168
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	100-52-7	Benzaldehyde	13.3258
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	544-76-3	Hexadecane	15.0045
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	629-78-7	Heptadecane	16.6737
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	1731-81-3	Undecylacetate (ISTD)	17.8646
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	2201016-N1002	trans-1,10-Dimethyl-trans-9-decalol	18.5156
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	79-77-6	(E)-beta-Ionone*	20.1079
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	95-16-9	Benzothiazole	20.2319
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	112-53-8	1-Dodecanol	20.4346
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	121-98-2	Methyl-p-anisate	21.4845
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	166273-38-7	Pentanoic acid, 5-hydroxy-, 2,4-di-t-butylphenyl esters	22.8071
C:\msdchem\1\DATA\Peter\Peter161115\0401004.FIN	A71IYV~1-N1002	Phthalic acid, cyclobutyl ethyl ester	23.1714

C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9726
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	7785-26-4	Alfa-Pinene	4.1665
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	66-25-1	Hexanal	5.1107
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9338
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	110-43-0	2-Heptanone	6.9667
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	3777-69-3	Furan, 2-pentyl-	7.9145
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	100-42-5	Styrene	8.3275
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	99-87-6	p-Cymene	8.6325
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	124-13-0	Octanal	9.0426
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.3052
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	112-06-1	Heptylacetat (RT LOCK)	10.727
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0655
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9145
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	112-31-2	Decanal	13.0144
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	100-52-7	Benzaldehyde	13.3275
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	1731-81-3	Undecylacetate (ISTD)	17.864
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	112-70-9	1-Tridecanol	19.1319
C:\msdchem\1\DATA\Peter\Peter161115\0501005.FIN	A71IYV~1-N1002	Phthalic acid, cyclobutyl ethyl ester	23.1719
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	592-88-1	Allyl sulfide	6.2462
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9377
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	100-42-5	Styrene	8.3319
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8031
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	629-50-5	Tridecane	9.4765
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.3037
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7209
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0664
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	2179-57-9	Allyl di sulfide	12.6022

C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	1124-11-4	Pyrazine, tetramethyl-	12.6492
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9095
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	100-52-7	Benzaldehyde	13.3284
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	1731-81-3	Undecylacetate (ISTD)	17.8584
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	74381-40-1	Propanoic acid, 2-methyl-, 1-(1,1-dimethylethyl)-2-methyl-1,3-propanediyl ester	19.3044
C:\msdchem\1\DATA\Peter\Peter161115\0601006.FIN	1330-86-5	Diisooctyl adipate	25.5917
C:\msdchem\1\DATA\Peter\Peter161115\0701001.FIN	108-88-3	Toluene	4.3916
C:\msdchem\1\DATA\Peter\Peter161115\0701001.FIN	589-38-8	3-Hexanon	4.6248
C:\msdchem\1\DATA\Peter\Peter161115\0701001.FIN	591-78-6	2-Hexanone	5.0954
C:\msdchem\1\DATA\Peter\Peter161115\0701001.FIN	623-37-0	3-Hexanol	7.3399
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	7785-26-4	Alfa-Pinene	4.1712
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	108-88-3	Toluene	4.3997
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	589-38-8	3-Hexanon	4.6336
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	591-78-6	2-Hexanone	5.103
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	592-88-1	Allyl sulfide	6.2511
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9373
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	100-42-5	Styrene	8.331
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8063
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	629-50-5	Tridecane	9.4779
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7182
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0578
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	1014-60-4	1,3-Di-tert-Butylbenzen	11.7217
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	2179-57-9	Allyl di sulfide	12.6019
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9097
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	1731-81-3	Undecylacetate (ISTD)	17.8581
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	0201002-N1006	Unknown methylester	23.4727
C:\msdchem\1\DATA\Peter\Peter161115\0801002.FIN	1330-86-5	Diisooctyl adipate	25.589

C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	108-88-3	Toluene	4.3965
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	589-38-8	3-Hexanon	4.6291
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	591-78-6	2-Hexanone	5.0986
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	592-88-1	Allyl sulfide	6.2484
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9382
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	100-42-5	Styrene	8.3313
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	0301003-N1002	Ukjent(phenylanaline)	8.806
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	629-50-5	Tridecane	9.4817
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7196
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	2179-57-9	Allyl di sulfide	12.6021
C:\msdchem\1\DATA\Peter\Peter161115\0901003.FIN	1731-81-3	Undecylacetate (ISTD)	17.8589
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9746
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	592-88-1	Allyl sulfide	6.2454
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	541-02-6	**Decamethylcyclopentasiloxane**	6.934
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	100-42-5	Styrene	8.3324
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8012
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	629-50-5	Tridecane	9.4799
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	110-93-0	5-Hepten-2-one, 6-methyl-	9.9681
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7184
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	2179-57-9	Allyl di sulfide	12.6009
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	26456-76-8	3,5,5-Trimethyl-2-hexene*	12.9153
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	112-31-2	Decanal	13.0016
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	100-52-7	Benzaldehyde	13.3277
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	1731-81-3	Undecylacetate (ISTD)	17.8559
C:\msdchem\1\DATA\Peter\Peter161115\1001004.FIN	1330-86-5	Diisooctyl adipate	25.5939
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	108-88-3	Toluene	4.3917
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	589-38-8	3-Hexanon	4.6191

C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	591-78-6	2-Hexanone	5.0991
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9364
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	629-50-5	Tridecane	9.4875
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7149
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	15796-04-0	2,4,4,6,6,8,8-Heptamethyl-1-nonene	11.6432
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	1731-81-3	Undecylacetate (ISTD)	17.8547
C:\msdchem\1\DATA\Peter\Peter161115\1101005.FIN	1330-86-5	Diisooctyl adipate	25.5927
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	124-18-5	Decane	3.9529
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9828
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	100-41-4	Ethylbenzene	5.8706
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	592-88-1	Allyl sulfide	6.2525
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	98-82-8	Cumene	6.7525
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	541-02-6	Decamethylcyclopentasiloxane	6.93
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	138-86-3	s-Limonene	7.2549
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	103-65-1	Propylbenzene	7.4276
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	100-42-5	Styrene	8.3295
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8031
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	629-50-5	Tridecane	9.4799
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	110-93-0	5-Hepten-2-one, 6-methyl-	9.977
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	3658-80-8	Dimethyl trisulfide	10.6879
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7202
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.061
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	629-59-4	Tetradecane	11.4106
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	2179-57-9	Allyl di sulfide	12.6004
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9071
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	112-31-2	Decanal	13.0105
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	3853-83-6	alfa-Himachalene*	15.7179

C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	1731-81-3	Undecylacetate (ISTD)	17.8578
C:\msdchem\1\DATA\Peter\Peter161115\1201006.FIN	1330-86-5	Diisooctyl adipate	25.5916
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9717
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	108-88-3	Toluene	4.3853
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	591-78-6	2-Hexanone	5.0863
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	592-88-1	Allyl sulfide	6.2414
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9329
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	100-42-5	Styrene	8.3243
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7984
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	629-50-5	Tridecane	9.4776
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	3658-80-8	Dimethyl trisulfide	10.6815
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7185
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0587
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	2179-57-9	Allyl di sulfide	12.601
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	1731-81-3	Undecylacetate (ISTD)	17.8566
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	123-95-5	Stearinsyre-n-butylester	24.4483
C:\msdchem\1\DATA\Peter\Peter161115\1301007.FIN	1330-86-5	Diisooctyl adipate	25.5993
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	556-67-2	Octametylcylcotetrasiloxane	4.0056
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	592-88-1	Allyl sulfide	6.1449
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	138-86-3	s-Limonene	7.3364
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8206
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	629-50-5	Tridecane	9.3588
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	112-40-3	Dodecane	9.9645
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.441
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	112-06-1	Heptylacetat (RT LOCK)	11.0797
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	12.0497
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	2179-57-9	Allyl di sulfide	13.2289

C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	112-31-2	Decanal	13.2595
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	622-32-2	anti-Benzaldoxime	13.5809
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	78-70-6	Linalool	13.988
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.689
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	80-26-2	alfa-Terpineolacetate	16.4974
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	17.0515
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.7795
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	91-57-6	Naphthalene, 2-methyl-	18.86
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9364
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	155-09-9	Tranylcypromine	23.8594
C:\msdchem\1\DATA\Peter\Peter161115\1401008.FIN	1330-86-5	Diisooctyl adipate	25.5909
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	556-67-2	Octametylcylcotetrasiloxane	3.98
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	112-40-3	Dodecane	4.6274
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	1120-21-4	Undecane	5.5957
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	112-40-3	Dodecane	5.5957
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	592-88-1	Allyl sulfide	6.1545
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	541-02-6	Decamethylcyclopentasiloxane	7.0005
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	138-86-3	s-Limonene	7.2779
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	0301003-N1002	Ukjent(phenylanaline)	8.9165
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	629-50-5	Tridecane	9.1915
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.4018
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	3658-80-8	Dimethyl trisulfide	10.6903
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	112-06-1	Heptylacetat (RT LOCK)	10.9483
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	11.8719
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	2179-57-9	Allyl di sulfide	13.0969
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	112-31-2	Decanal	13.1574
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	622-32-2	anti-Benzaldoxime	13.7291

C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	78-70-6	Linalool	13.9665
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.6533
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	80-26-2	alfa-Terpineolacetate	16.4947
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	17.0464
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.7744
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	91-57-6	Naphthalene, 2-methyl-	18.8572
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9371
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	60-12-8	Phenylethyl Alcohol	19.7309
C:\msdchem\1\DATA\Peter\Peter161115\1501009.FIN	155-09-9	Tranylcypromine	23.8625
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	124-18-5	Decane	3.9496
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	1120-21-4	Undecane	5.3932
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	592-88-1	Allyl sulfide	6.2463
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9414
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	112-40-3	Dodecane	7.5019
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	629-50-5	Tridecane	9.4814
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	110-93-0	5-Hepten-2-one, 6-methyl-	9.9738
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.3075
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7176
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0578
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	629-59-4	Tetradecane	11.4027
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	1014-60-4	1,3-Di-tert-Butylbenzen	11.7193
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	112-31-2	Decanal	13.0125
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	107-50-6	Cycloheptasiloxane, tetradecamethyl-	13.4273
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	629-78-7	Heptadecane	16.6653
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	1731-81-3	Undecylacetate (ISTD)	17.8539
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	2201016-N1002	trans-1,10-Dimethyl-trans-9-decalol	18.5067
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	166273-38-7	Pentanoic acid, 5-hydroxy-, 2,4-di-t-butylphenyl esters	22.8064

C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	123-95-5	Stearinsyre-n-butylester	24.445
C:\msdchem\1\DATA\Peter\Peter161115\1601010.FIN	1330-86-5	Diisooctyl adipate	25.5866
C:\msdchem\1\DATA\Peter\Peter161115\1701011.FIN	110-93-0	5-Hepten-2-one, 6-methyl-	9.9643
C:\msdchem\1\DATA\Peter\Peter161115\1701011.FIN	112-06-1	Heptylacetat (RT LOCK)	10.714
C:\msdchem\1\DATA\Peter\Peter161115\1701011.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0594
C:\msdchem\1\DATA\Peter\Peter161115\1701011.FIN	112-31-2	Decanal	13.006
C:\msdchem\1\DATA\Peter\Peter161115\1701011.FIN	1731-81-3	Undecylacetate (ISTD)	17.8521
C:\msdchem\1\DATA\Peter\Peter161115\1701011.FIN	123-95-5	Stearinsyre-n-butylester	24.4455
C:\msdchem\1\DATA\Peter\Peter161115\1701011.FIN	1330-86-5	Diisooctyl adipate	25.5907
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9978
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	112-40-3	Dodecane	4.5613
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	1120-21-4	Undecane	5.6377
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	592-88-1	Allyl sulfide	6.4878
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	138-86-3	s-Limonene	7.2881
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8163
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	629-62-9	Pentadecane (ISTD)	8.9802
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	629-50-5	Tridecane	9.3433
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.4414
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	3658-80-8	Dimethyl trisulfide	10.6929
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	12.0513
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	2179-57-9	Allyl di sulfide	13.2434
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	112-31-2	Decanal	13.2769
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	622-32-2	anti-Benzaldoxime	13.6077
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	78-70-6	Linalool	13.9861
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.6906
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	80-26-2	alfa-Terpineolacetate	16.5043
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	17.0566

C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.7658
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	91-57-6	Naphthalene, 2-methyl-	18.8428
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9297
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	60-12-8	Phenylethyl Alcohol	19.7329
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	155-09-9	Tranylcypromine	23.8616
C:\msdchem\1\DATA\Peter\Peter161115\1801012.FIN	1330-86-5	Diisooctyl adipate	25.5884
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9738
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	108-88-3	Toluene	4.3627
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	112-40-3	Dodecane	4.5408
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	1120-21-4	Undecane	5.502
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	592-88-1	Allyl sulfide	6.2752
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	541-02-6	Decamethylcyclopentasiloxane	7.059
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	138-86-3	s-Limonene	7.2582
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	629-62-9	Pentadecane (ISTD)	8.6765
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7999
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	629-50-5	Tridecane	9.673
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.3727
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	3658-80-8	Dimethyl trisulfide	10.683
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	112-06-1	Heptylacetat (RT LOCK)	10.8534
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	11.7987
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	2179-57-9	Allyl di sulfide	12.6607
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	112-31-2	Decanal	13.0984
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	622-32-2	anti-Benzaldoxime	13.4844
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	78-70-6	Linalool	13.9409
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.6096
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	80-26-2	alfa-Terpineolacetate	16.4815
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	17.0332

C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	1731-81-3	Undecylacetate (ISTD)	18.1054
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.7453
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	91-57-6	Naphthalene, 2-methyl-	18.827
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9263
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	60-12-8	Phenylethyl Alcohol	19.7283
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	155-09-9	Tranylcypromine	23.861
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	123-95-5	Stearinsyre-n-butylester	24.4457
C:\msdchem\1\DATA\Peter\Peter161115\1901013.FIN	1330-86-5	Diisooctyl adipate	25.5908
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	556-67-2	Octametylcylcotetrasiloxane	4.0161
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	112-40-3	Dodecane	4.7258
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	1120-21-4	Undecane	5.6483
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	592-88-1	Allyl sulfide	6.4879
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	138-86-3	s-Limonene	7.3228
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	872-55-9	Thiophene, 2-ethyl-	8.5637
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	0301003-N1002	Ukjent(phenylanaline)	8.8134
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	629-62-9	Pentadecane (ISTD)	8.9732
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	629-50-5	Tridecane	9.3398
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	112-40-3	Dodecane	9.3398
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.4503
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	3658-80-8	Dimethyl trisulfide	10.7076
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	112-06-1	Heptylacetat (RT LOCK)	11.0772
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	12.0408
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	112-31-2	Decanal	13.2588
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	622-32-2	anti-Benzaldoxime	13.7735
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	78-70-6	Linalool	13.9856
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.6883
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	80-26-2	alfa-Terpineolacetate	16.5003

C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	17.0561
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.784
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	91-57-6	Naphthalene, 2-methyl-	18.8651
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9356
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	60-12-8	Phenylethyl Alcohol	19.7376
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	155-09-9	Tranylcypromine	23.8628
C:\msdchem\1\DATA\Peter\Peter161115\2001014.FIN	1330-86-5	Diisooctyl adipate	25.5896
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	124-18-5	Decane	3.9467
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	112-40-3	Dodecane	4.5189
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	1120-21-4	Undecane	5.3944
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	592-88-1	Allyl sulfide	6.2451
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9502
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	124-13-0	Octanal	9.0289
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	629-50-5	Tridecane	9.4731
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	110-93-0	5-Hepten-2-one, 6-methyl-	9.9719
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.3121
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7152
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0542
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	629-59-4	Tetradecane	11.3897
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	1014-60-4	1,3-Di-tert-Butylbenzen	11.7134
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	2179-57-9	Allyl di sulfide	12.5936
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.905
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	112-31-2	Decanal	13.0043
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	107-50-6	Cycloheptasiloxane, tetradecamethyl-	13.4332
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	629-78-7	Heptadecane	16.6559
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	1731-81-3	Undecylacetate (ISTD)	17.8504
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	2201016-N1002	trans-1,10-Dimethyl-trans-9-decalol	18.5055

C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	79-77-6	(E)-beta-Ionone*	20.1013
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	166273-38-7	Pentanoic acid, 5-hydroxy-, 2,4-di-t-butylphenyl esters	22.8034
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	123-95-5	Stearinsyre-n-butylester	24.4397
C:\msdchem\1\DATA\Peter\Peter161115\2101015.FIN	1330-86-5	Diisooctyl adipate	25.5866
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	124-18-5	Decane	3.9415
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	112-40-3	Dodecane	4.5103
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	1120-21-4	Undecane	5.3892
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	592-88-1	Allyl sulfide	6.2388
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9433
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	124-13-0	Octanal	9.0297
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	629-50-5	Tridecane	9.4739
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	110-93-0	5-Hepten-2-one, 6-methyl-	9.9686
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.3123
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7124
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0549
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	629-59-4	Tetradecane	11.3893
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	1014-60-4	1,3-Di-tert-Butylbenzen	11.713
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	2179-57-9	Allyl di sulfide	12.5943
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9069
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	112-31-2	Decanal	13.0062
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	107-50-6	Cycloheptasiloxane, tetradecamethyl-	13.4357
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	1731-81-3	Undecylacetate (ISTD)	17.8458
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	2201016-N1002	trans-1,10-Dimethyl-trans-9-decalol	18.4997
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	166273-38-7	Pentanoic acid, 5-hydroxy-, 2,4-di-t-butylphenyl esters	22.8041
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	A71IYV~1-N1002	Phthalic acid, cyclobutyl ethyl ester	23.1684
C:\msdchem\1\DATA\Peter\Peter161115\2201016.FIN	1330-86-5	Diisooctyl adipate	25.5856
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	124-18-5	Decane	3.9332

C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	1120-21-4	Undecane	5.3874
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	592-88-1	Allyl sulfide	6.2311
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9462
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	112-40-3	Dodecane	7.4914
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	62238-13-5	Decane, 2,3,7-trimethyl-	8.3909
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	124-13-0	Octanal	9.0284
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	629-50-5	Tridecane	9.4691
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	110-93-0	5-Hepten-2-one, 6-methyl-	9.9673
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	540-97-6	Cyclohexasiloxane, dodecamethyl-	10.311
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7117
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0502
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	629-59-4	Tetradecane	11.3933
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	1014-60-4	1,3-Di-tert-Butylbenzen	11.7106
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	2179-57-9	Allyl di sulfide	12.5913
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	104-76-7	1-Hexanol, 2-ethyl-	12.9086
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	112-31-2	Decanal	13.0049
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	107-50-6	Cycloheptasiloxane, tetradecamethyl-	13.4327
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	629-78-7	Heptadecane	16.6624
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	1731-81-3	Undecylacetate (ISTD)	17.8475
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	2201016-N1002	trans-1,10-Dimethyl-trans-9-decalol	18.5003
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	79-77-6	(E)-beta-Ionone*	20.0972
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	166273-38-7	Pentanoic acid, 5-hydroxy-, 2,4-di-t-butylphenyl esters	22.8035
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	A71IYV~1-N1002	Phthalic acid, cyclobutyl ethyl ester	23.1683
C:\msdchem\1\DATA\Peter\Peter161115\2301017.FIN	123-95-5	Stearinsyre-n-butylester	24.4386
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	589-38-8	3-Hexanon	4.6102
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	591-78-6	2-Hexanone	5.0931
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	592-88-1	Allyl sulfide	6.2365

C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7113
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	124-19-6	Nonanal (Pelargonaldehyd)	11.0544
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	2179-57-9	Allyl di sulfide	12.5938
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	112-31-2	Decanal	13.0045
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	1731-81-3	Undecylacetate (ISTD)	17.8458
C:\msdchem\1\DATA\Peter\Peter161115\2401018.FIN	A71IYV~1-N1002	Phthalic acid, cyclobutyl ethyl ester	23.1696
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	556-67-2	Octametylcylcotetrasiloxane	3.8064
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	112-40-3	Dodecane	4.3546
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	1120-21-4	Undecane	5.2864
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	592-88-1	Allyl sulfide	6.1307
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9081
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	138-86-3	s-Limonene	7.1648
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7447
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	629-50-5	Tridecane	9.4745
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7007
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	11.6548
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	2179-57-9	Allyl di sulfide	12.6983
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	622-32-2	anti-Benzaldoxime	13.3335
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.5197
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	16.9428
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.6314
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	1918-16-7	Propachlor	20.9833
C:\msdchem\1\DATA\Peter\Peter161115\2501001.FIN	155-09-9	Tranylcypromine	23.8464
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9821
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	108-88-3	Toluene	4.3763
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	112-40-3	Dodecane	4.602
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	591-78-6	2-Hexanone	5.0855

C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	1120-21-4	Undecane	5.431
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	592-88-1	Allyl sulfide	6.26
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9745
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	138-86-3	s-Limonene	7.2459
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7965
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	629-50-5	Tridecane	9.5597
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	3658-80-8	Dimethyl trisulfide	10.6807
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7377
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	11.6937
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	2179-57-9	Allyl di sulfide	12.7671
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	622-32-2	anti-Benzaldoxime	13.3658
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.5433
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	16.9604
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.6561
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9129
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	1918-16-7	Propachlor	20.9945
C:\msdchem\1\DATA\Peter\Peter161115\2601002.FIN	155-09-9	Tranylcypromine	23.85
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9408
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	108-88-3	Toluene	4.3263
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	112-40-3	Dodecane	4.5742
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	591-78-6	2-Hexanone	5.0443
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	1120-21-4	Undecane	5.442
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	592-88-1	Allyl sulfide	6.4403
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9761
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	138-86-3	s-Limonene	7.2335
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7857
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	629-50-5	Tridecane	9.5384

C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	112-40-3	Dodecane	9.5384
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	3658-80-8	Dimethyl trisulfide	10.6677
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	11.7006
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	2179-57-9	Allyl di sulfide	12.7969
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	622-32-2	anti-Benzaldoxime	13.3686
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.5437
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	16.9615
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.6513
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9051
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	1918-16-7	Propachlor	20.9944
C:\msdchem\1\DATA\Peter\Peter161115\2701003.FIN	155-09-9	Tranylcypromine	23.8504
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9888
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	108-88-3	Toluene	4.3906
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	112-40-3	Dodecane	4.6074
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	591-78-6	2-Hexanone	5.0975
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	1120-21-4	Undecane	5.4277
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	592-88-1	Allyl sulfide	6.2632
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9659
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	138-86-3	s-Limonene	7.2496
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	623-37-0	3-Hexanol	7.3395
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7978
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	629-50-5	Tridecane	9.5246
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7244
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	11.6833
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	2179-57-9	Allyl di sulfide	12.7185
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	622-32-2	anti-Benzaldoxime	13.3501

C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.5346
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	16.9553
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	1731-81-3	Undecylacetate (ISTD)	17.8566
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.6492
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9136
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	1918-16-7	Propachlor	20.9918
C:\msdchem\1\DATA\Peter\Peter161115\2801004.FIN	155-09-9	Tranylcypromine	23.8496
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	556-67-2	Octametylcylcotetrasiloxane	3.9786
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	108-88-3	Toluene	4.3769
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	112-40-3	Dodecane	4.6037
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	591-78-6	2-Hexanone	5.0796
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	1120-21-4	Undecane	5.4533
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	592-88-1	Allyl sulfide	6.2665
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	541-02-6	Decamethylcyclopentasiloxane	6.9856
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	138-86-3	s-Limonene	7.2483
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	623-37-0	3-Hexanol	7.3346
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	0301003-N1002	Ukjent(phenylanaline)	8.7964
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	629-50-5	Tridecane	9.5497
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	3658-80-8	Dimethyl trisulfide	10.6748
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	112-06-1	Heptylacetat (RT LOCK)	10.7465
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	20184-99-0	Acetic acid, 2-(thiocarboxy)hydrazide, O-methyl ester	11.7048
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	2179-57-9	Allyl di sulfide	12.7959
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	622-32-2	anti-Benzaldoxime	13.367
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	34135-85-8	Tri sulfide, Allyl tri sulfide	14.5473
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	62488-52-2	3-Vinyl-1,2-dithiacyclohex-4-ene	16.9604
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	62488-53-3	3-Vinyl-1,2-dithiacyclohex-5-ene	18.6537
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	90-05-1	Guaiacol (Phenol, 2-methoxy-)	18.9187

C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	1918-16-7	Propachlor	20.9921
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	155-09-9	Tranylcypromine	23.8506
C:\msdchem\1\DATA\Peter\Peter161115\2901005.FIN	1330-86-5	Diisooctyl adipate	25.588

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