

WORLD

INTERNATIONAL FEDERATION OF ESSENTIAL OILS & AROMA TRADES

MARCH 2023

SOUTH AFRICA STUDY
TOUR REPORT

MY FAVOURITE:
TURPENTINE OIL

CONIFER TREES, PINE
CHEMICALS AND THE
SEEDS OF A NEW
CHEMISTRY

SOCIO-ECONOMIC
REPORT ON OREGANO
FROM TÜRKIYE

SUNDAY 8 - THURSDAY 12 OCTOBER
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BERLIN 2023

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FROM THE IFEAT 2023 BERLIN CONFERENCE CHAIR



Dear Members and dear friends of IFEAT,

All good things come in threes! We are excited that after the COVID-related postponements in 2020 and 2021, the IFEAT 2023 Berlin Conference will finally take place this year – from the 8th to 12th October at the InterContinental Berlin Hotel.

We are back in Europe after six years (since Athens in 2017) and it will be the first time since IFEAT formed almost 46 years ago in 1977 that we will hold a Conference in Germany.

Berlin is located in the heart of Europe. With a population of almost four million people, it is by far the biggest city in Germany. As the country's capital, Berlin is very cosmopolitan and with 190 nationalities represented by more than 150 diplomatic missions that is self-explanatory! Pre-pandemic,

Berlin had 12 million visitors, creating 30 million overnight hotel stays – every year.

Berlin is a melting pot for contrasts, extremes, antipodes, and contradictions...

Old & New
East & West – North & South
Nations, Religions etc.

...you name it, it's in Berlin...

Under the theme **"TRADE. TRADITION. MODERN SPIRIT."**, we are expecting a variety of presentations, workshops and roundtables – and rarely have we been as far advanced with the organisation of a Conference as we are today. For updates, please watch all channels; the IFEAT and Conference websites www.ifeat.org and www.conference.ifeat.org, the Whova Conference app for registered delegates, social media, IFEATWORLD, etc.

The format of the Conference is that on all four days from Monday to Thursday, we will host presentations in the mornings and other events in the afternoon.

One more tip: we would like to ask all participants to book accommodation as soon as possible to avoid disappointment, especially in the venue hotel and if you want to stay beyond the Conference dates. The rates are extremely competitive as of today – and Berlin is a popular congress location at all times of the year.

On behalf of the IFEAT staff and the organising committee – which I will introduce to you in the next issue – we look forward to welcoming you in Berlin this autumn!

Jens-Achim Protzen
Chair of the IFEAT 2023
Berlin Conference Committee

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If you would like to contribute editorial, or write a "My Favourite" article, please contact the editor, Tina Hotchin, by email at: tina.hotchin@ifeat.org



NOTES FROM THE CHAIR

BY CATHERINE CROWLEY,
IFEAT EXECUTIVE COMMITTEE CHAIR



Greetings to all from a warm and rainy South Africa. Having stepped into the role of IFEAT Chair last October, a quick follow up to that

was helping host the first IFEAT Study Tour in southern Africa. There was a great team organising the event, we had site hosts who all went out of their way to welcome us, and we held the first ever Scent Creation Experience. One of the best aspects of the Tour was the fantastic IFEAT members who participated – we created treasured memories together! Expressing the sense of the Tour best is Peter Greenhalgh's article in this issue!

Three months into the year, and I am fully aware of the breadth of this role with IFEAT. I am quite sure those having served in this position before me also made the shifts needed to be able to juggle running our own businesses and doing everything we want to with a fantastic Board of Directors - the Executive Committee - and all of its very active EC Committees. It is a privilege to facilitate the work of such a great team of fellow Directors, Co-Opted Members, Staff, and Consultants as well as our new Panel of Experts.

IFEAT is an organisation set up to benefit its Members. We do this in a number of ways – I would like to share with you what I see as our lead issues in the coming year:

- **Advocacy:** IFEAT is part of a group of other industry associations that has come to be known as the G5 Heads of Associations. There is legislation related to the European Green Deal as well as the Chemical Strategy for Sustainability (CSS) that is either pending in Europe or has been partially passed, that has the potential to restrict the trade and use of essential oils. Changes in the CSS being considered could mean further restrictions under REACH and the CLP. The approach to this issue is multi-layered and necessarily complex – but also very important. We need more widely read articles published about the increased uses and diverse benefits of essential oils, articles appearing in social media or general consumer reading. Increased public opinion in support of broad uses of essential oils and aroma chemicals will help industry-based efforts to build greater scientific understanding of the oils and their safety in legislative deliberations and in other important arenas.
- **Industry-based course work:** IFEAT is undertaking the creation of a primarily online source for further training in needed aspects in our industry. With IFEAT's recent acquisition of ICATS (see page 25), potential new courses may include global regulatory knowledge, steam distillation practices, flavour and fragrance development and more. A recent survey went out asking for each of your input on the needs

for further training in your companies and spheres of influence. Please try to take our surveys and we promise to keep them as short as possible!

- **Focus Study Tours (FST):** this year, IFEAT hosted its first FST – participants saw first-hand the lemon oil industry in Spain! With a much shorter itinerary than full Study Tours (only three days) and a lower cost to join – this new activity of IFEAT will allow broader participation from Members.
- **Projects benefitting Members of IFEAT:** we continue to look for new projects and activities that will benefit the health and prosperity of our Member companies. Our exciting annual Conferences are our main way to do this: our teams work very hard to find the right venues where we can bring everyone together to be able to meet, increase trade, and have the benefit of great speakers in a fantastic creative setting! Our idea is to create a place for unique gatherings and experiences for all of us.

As always, we welcome your input. You are IFEAT and we look forward to moving into our next stages of growth with you!

4 - 12 NOVEMBER 2022

SOUTH AFRICA STUDY TOUR

REPORT

BY PETER GREENHALGH

Since 2005 IFEAT Study Tours have provided some unique educational and cultural experiences in the world of natural essential oils. Travelling with industry colleagues from many countries, all eager to learn and exchange detailed knowledge about the fascinating world of fragrance, flavour, aromatherapy, and related ingredients, has provided lasting memories for hundreds of IFEAT Members who have participated on previous tours. As the world reopened following the pandemic, which had seen the cancellation of several planned tours, IFEAT was able to hold its 12th Study Tour which took place in South Africa (SAST) from 4th to 12th November 2022. Several years of planning by the Local Organising Committee (with joint chairs Catherine Crowley and Nicola Laubscher of Eucaforest), the IFEAT Secretariat, and

Africa Awaits (the local tour agent) had gone into the SAST.

IFEAT's first Sub-Saharan Africa event was the successful Cape Town Conference in November 2006. Sixteen years later, on 4th November 2022, some 35 IFEAT Members from 18 countries met up in Cape Town for the start of IFEAT's first Sub-Saharan Africa Study Tour. South Africa is an increasingly important global supplier of essential oils, and the region is a significant producer of lesser-known indigenous essential oils and botanicals, increasingly used in new cosmetic and cosmeceutical formulations. The Welcome Reception and briefing were held at the Table Bay Hotel with beautiful views over

the harbour and the imposing Table Mountain beyond. Some delegates had climbed the 1,086-metre mountain earlier in the day and enjoyed stunning views over Cape Town and the Cape Peninsula, flanked by two of the world's largest oceans – the Atlantic and the Indian.

The tour began in the beautiful Cape floral region, a UNESCO World Heritage Site with the largest floral kingdom in the world, including the distinctive fynbos flora such as buchu, Cape chamomile, Blue Mountain sage, and Cape snowbush. Alongside fynbos oils, delegates saw organic rosemary, lavender, as well as the Cape Winelands. Then on to Durban and the east coast for a Scent Creation Workshop and to see the production and processing of tea tree, lemongrass, and eucalyptus. The final





BUCHU FIELDS
at Skimmelberg

day was spent on safari, incorporating stunning game drives and first-hand experience of fragrant and medicinal plants.

Following an initial briefing, the SAST began as it was to continue - convivial and knowledgeable people, excellent food and hotels, good weather, and many insights into South Africa's essential oil sector, the economy, the diverse cultures, the magnificent scenery and wildlife, and the history and politics. For many, it was their first visit to Sub-Saharan Africa. Each IFEAT Study Tour is both memorable and different. By the end of the SAST the delegates had taken two internal flights, stayed in six different hotels, travelled 4,750 km through magnificent and diverse scenery starting in the Western Cape, South Africa's most southern province, to Durban, KwaZulu-Natal, Mpumalanga, and Johannesburg. While travelling around this large and beautiful



SEEDLING NURSERY
at Skimmelberg

country, delegates not only saw diverse environments and magnificent scenery but also sampled the rich heritage of traditional music, dance, crafts, costumes, and cuisines.

The eight days were filled with visits to diverse companies and organisations - all IFEAT Members - involved in a range of F&F activities. Three sizable family-owned production and processing operations producing a range of essential oils were visited in the Cape area. Each farm, covering hundreds of hectares, some of which were protected and devoted to conservation, was set in a beautiful location and the owners were passionate about biodiversity conservation and actively promoting sustainable best practices and benefit-sharing. Skimmelberg Fynbos Oils farm (www.skimmelbergfynbos.co.za) is organically certified and produces buchu, Cape chamomile,

Cape May, Cape snowbush, and rooibos tea. Lindsay Chicken and Paul Hartwig, along with their colleagues, provided detailed descriptions of the production, harvesting, and processing of these products. Mouton's Valley Pty Ltd. (www.piquetbuchu.co.za), owned and operated by Eric and Michele Starke, has been producing buchu for over a hundred years, as well as a wide range of fruits. Today the buchu and other plants are cultivated rather than wild harvested as previously. Herbs-Aplenty (www.herbs-aplenty.com), owned and operated by Elmarie de Bruyn and her son Pietersaral de Bruyn, produces a range of oils and herbs: rosemary, lavender, Blue Mountain sage, African wormwood, and Cape chamomile - as well as a range of consumer products, including gin! Each of the above companies is evaluating possible new oils to produce. Whilst in the Cape, delegates had evening meals at the



ARRIVAL AND WELCOME
at Mouton's Valley

Gold Restaurant, serving a range of African cuisine alongside African dancing, and the Morgenster Estate prior to which was a wine tasting session.

During the visit to the east coast, four essential oil operations were visited. Ayanda African Oils (<https://ayanda.co.za>) is a farming cooperative founded by a group of farmers to sell their products jointly and share their knowledge on the production, processing, and marketing of essential oils. There are currently 31 shareholding member companies producing oils on over 700 hectares. Mathias Wessels, the General Manager, and his colleagues provided detailed explanations of the extensive operations. Ayanda currently markets seven essential oils - tea tree, lemon-scented tea tree, rosemary, rose geranium,

lemongrass, niaouli, and *Eucalyptus smithii* and is currently investigating several other oils. The following day saw first a visit to Lion Rock Essential Oils, a joint venture combining decades of farming experience to become a world leader in producing organic *Eucalyptus radiata* oil. Dave Mitchell, one of the owners, shared his extensive knowledge and enthusiasm with the delegates on a tour of the farm. Following on was a visit to Oribi Oils (www.oribioils.co.uk), a producer group collaboration between large scale commercial growers and disadvantaged emerging farmers, headed by Stuart and Lauren Bateman. Oribi produces several oils including tea tree, rose geranium, rosemary, and *Eucalyptus radiata*. A highlight was a visit to the Khula

Community Centre, supported by Oribi Oils, which provides feeding and educational programmes to the rural community as well as being superbly entertained by the Marimba Boys band.

Unfortunately the final company visit of the tour was delayed a day because the four small chartered aircraft taking us from near Durban to Ermelo were unable to land because of dense clouds necessitating a detour to Johannesburg and a long coach journey back to Piet Retief. A very early start the next day enabled the visit to Eucaforest Pty Ltd (www.eucaforest.com) to see the harvesting and processing of *E. dives* including into its isolated constituents.



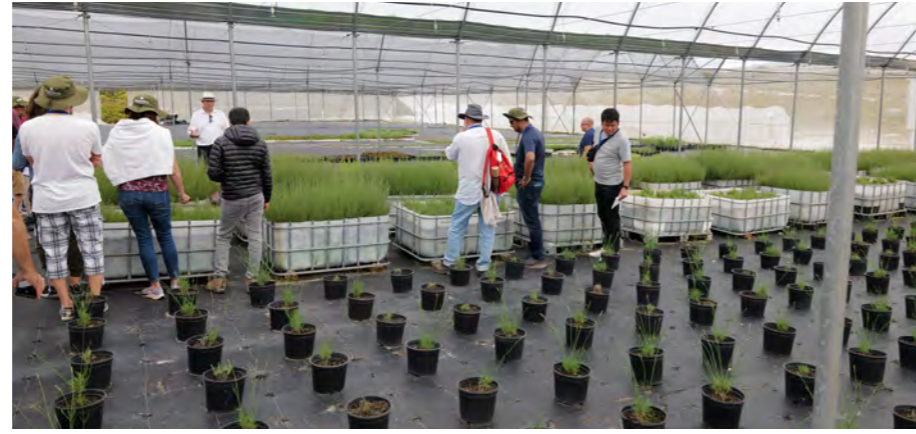
HERBS-APLENTY FACILITIES



NATURAL FYNBOS
at Herbs-Aplenty

In addition, the delegates were entertained by the Eucaforest choir and dancers to a moving rendition of Jerusalem, the global hit written recently in Zululand. The final day of the tour was a memorable visit to Thanda Private Game Reserve, where delegates not only saw some of the icons of African wildlife and learnt about the aromatic, medicinal, and traditional usage of indigenous plants, but also had the closing "Bush Dinner" under the stars accompanied by African dancers and drummers.

During each company visit delegates saw and discussed at length the production and processing of several essential oils. Each company gave a warm welcome, along with excellent food and drinks, and



FYNBOS SEEDLINGS
at Herbs-Aplenty

explained in detail the growing, harvesting, distillation, and further processing of various South African ingredients. It was interesting to see how each company was using different processing techniques to produce their oils. Moreover, it was exciting to see the important strides and efforts that the companies were taking to increase the volume and scope of natural flavour, fragrance, and aromatherapy ingredients. Finally, each company highlighted a range of projects in which it was giving back to the local community.

On every IFEAT Study Tour a great deal of time is spent on smelling oils, but a SAST innovation was an afternoon Scent Creation Workshop held at the beautiful Oyster Box Hotel at Umhlanga, overlooking the Indian Ocean. The Workshop (led by Frank Rittler of www.magnifiscent.gmbh) began with an overview of

perfume history, fragrance structures, ingredients, and applications. The local companies had provided their essential oils, including those provided by Teubes/Scatters Oils (www.teubes.com), and these were used in practical work by each delegate to create and evaluate their own scent creations. It was an exciting experience for all – for many it was the first time to create their own fragrance.

A key feature of Study Tours is the interaction between participants from many countries and various sectors of the industry. During the long hours travelling together they share their knowledge and experience through individual discussions - it is an intense learning experience in an enjoyable environment. Nevertheless, considerable stamina is needed -



AT THANDA PRIVATE GAME RESERVE



SHORT SEMINAR ON UNIQUE CAPE OILS
at Herbs-Aplenty



AROMA & TASTE EXPERIENCE
at Lourensford Estate



SCENT CREATION WORKSHOP
with Frank Rittler



DISTILLATION UNIT
at Herbs-Aplenty



HARVESTING & COLLECTING TEA TREE
at Ayanda



CHIPPING & LOADING TEA TREE
at Ayanda



LEMONGRASS FIELD DISCUSSION
at Ayanda



SPREADING ORGANIC CHIPPED BIOMASS
at Lion Rock



DISTILLATION INFRASTRUCTURE
at Lion Rock



PRESENTING STUDY TOUR CERTIFICATE
at Oribi



LECTURE
at Oribi



MARIMBA GROUP
at Khula Community Centre



TEAMS HARVESTING
at Eucaforest



LOADING LEAF MATERIAL
at Eucaforest



BRIEF ON MOBILE DISTILLATION
at Eucaforest



CHIPPING ONTO CONVEYOR SYSTEM
at Eucaforest



STAFF CHOIR ENTERTAINS
at Eucaforest



STAFF AND DELEGATES IN JERUSALEMA DANCE
at Eucaforest



PRIDE OF LIONS
at Thanda

early rises, often daily checkouts, much travelling, being on the go all day, late nights, and dinners. What was clear by the end of the Tour was that everyone had thoroughly enjoyed themselves, and each returned to work refreshed and revitalised. The post Tour comments include:

"The Study Tour was nothing short of amazing! From the committee and attendees to all of the farms we visited - it was a trip of a lifetime!"

"So educational - it was great to witness the complete process - from the preliminary stages of planting to the distillation and drumming of the material. It was quite the experience to see how each supplier had their own techniques. Most importantly, it was so touching to see how each and every supplier gave back to the community!"

"The SAST was well planned, and well executed. The experience allowed us to engage with folks from different

companies and from a variety of functions (business owners, c-suite, marketing, sales, purchasing, QC, and R&D), which enabled a wide breadth of topics to be discussed throughout the trip in both social and work-related settings. Additionally, seeing the plantations and the various organisations and their unique circumstances in South Africa was a big educational lesson on the workings of an essential oils and naturals company. This type of exposure and learning is not easily accessible in the modern remote working environment or at our daily jobs because of most people's singular focus on their own responsibilities and company."

"The Scent Creation Workshop was a wonderful way to bring the experiences of visiting the plantations to a full circle since we used some South African oils in the process. In the end, the company, experiences, and learning were priceless to me, and I look forward to participating in future Study Tours

and recommending others from my company to do so as well."

"As a new participant on the SAST it was a wonderful experience at every level. South Africa is a nice country with incredible landscapes and very large fields - I didn't expect them to be that big! I was amazed by the passion and explanations shared by the different people we visited together with their very warm and friendly welcome. It was great organisation, despite some unexpected events/delays that have been handled efficiently. It was also an amazing 'melting pot' of participants, with great group spirit - lots of memorable times and laughs, and new friendships"

"Everything was so well organised, so informative and so much fun! I can't fault it, Thanks for an amazing trip."

For more information on IFEAT Study Tours, see www.ifeat.org.

IFEAT 2023 FOCUS STUDY TOUR - SPANISH LEMON

Following several postponements, IFEAT's first Focus Study Tour (FST) took place in spring 2023. In comparison with existing IFEAT Study Tours, the FST was of shorter duration, lower cost, centred on one location, and aimed to appeal to less senior participants from IFEAT Member companies. The Spanish lemon industry tour was organised with AILIMPO (Spanish Lemon and Grapefruit Interprofessional Association) based in Murcia, southern Spain. AILIMPO has previously created an intensive series of visits to some of its members.

After a Welcome Reception and Cocktails on the Sunday evening,

Monday started with a presentation by AILIMPO on the Spanish lemon industry. This was followed by visits to two orchards, one growing conventional lemons, the other organic. The final visit of the day was to the packing operations of The Natural Fruit Company, an organisation annually processing 130,000 MT of lemons as well as other citrus. Tuesday was devoted to lemon processing and five major processing companies - all IFEAT Members - opened their operations. Each delegate visited two of the following companies: Citricos De Murcia, Citromil, Fruit Tech Natural, Miguel Parra E Hijos, and Riverbend España.

AILIMPO organised an excellent programme of visits, which, while focusing on technical and economic aspects, was combined with an introduction to the superb local gastronomy - with lemon playing a key role. The FST enabled delegates not only to learn a great deal about lemons but also, like the previous 12 IFEAT Study Tours, it was both enjoyable and unforgettable.

The next edition of IFEATWORLD will have a full report on the FST.





MY FAVOURITE TURPENTINE OIL

BY DR TONY CURTIS

When I started to write this tribute to my favourite oil, I had just completed a review of *In Search of Perfumes* by Dominique Roques. This is a splendid account of 18 of the prominent natural aroma products. This list is almost a definitive starting point for the world's top twenty favourite oils. However, I have selected another oil that I have spent some 50 years starting to get to know. I do not use the word understand. The more you know about an oil the more you recognise there is much more to discover.

I have had an enduring 50-year love affair with this Cinderella[®] oil. As with any long love affair it has had high points but also some more difficult patches. I do not think anyone will smell gum turpentine (still less sulphate turpentine!) and say this is the most beautiful odour in the universe. I think a thin and hydrocarbon note is about as good as it gets. I am a chemist and you need chemistry to unlock the treasure chest of notes that turpentine contributes to the perfumers' palette.

Let us have some floral notes. With a little bit of wizardry you can conjure up two of the three rose alcohols: geraniol and citronellol. The yield of rose oil from petals is typically a bit under 0.5%. There is not enough land to use the natural oil for mass personal care products. Natural rose is not sustainable for such an application. Turpentine comes to the rescue as a sustainable solution. It is not petrochemical based and comes from a renewable resource.

Let's say you desire something floral but different from rose, what about something in the direction of

violet? No problem: we have α and β ionone. These are again nature identical synthetic products. 'Why?' the chemist exclaims, 'should we restrict ourselves to natural notes?' Swap the acetone in ionone synthesis with methyl ethyl ketone and get methyl ionone. Here is an oddity on the perfumers' shelves. Nerol and geraniol are cis and trans isomers and appear as different bottles on the perfumers' shelf. Citral is a mixture of their aldehydes but appears once only on the shelf! For the two ionones (α & β), there are two bottles on the shelf. However, methyl ionone is in fact a mixture of four isomers but there are not four methyl ionone bottles on the perfumers' shelf, usually just one. I did say the more you look at aroma products the more they reveal further complexity.

I came into the industry after the main development work on the pinene process based on α and β pinene had evolved. However, after my first few months in the R&D laboratory I was given a couple of small presents: two 10-gallon drums of longifolene (a sesquiterpene hydrocarbon) and delta 3 carene (a monoterpene). The brief was rather open: 'can you see if you can get anything useful out of these?' Longifolene and iso longifolene were happy hunting grounds and I and other chemists produced a number of wonderful (well I am biased!) aroma materials. No longifolene is wasted now! I did say that a long love affair has its moments. The longifolene exploits were a high for me (with other chemists). I had to admit total defeat to get anything interesting out of carene. Of course, I just said I was too busy with longifolene and sidestepped the question.

Concurrently with this work I re-investigated the air oxidation of β pinene. Myrtenol and myrtenyl acetate proved interesting and we attempted to scale-up the process. This ended up as a total messy failure. However, we did produce some myrtenal - this exhibits a wonderful fresh green note, less 'chemical' than cis 3 hexanol. Jackpot! Not what we had been looking for but who cares when you find silver instead of gold?

However, the sample was rather impure so a few grammes of 99%+ purity was required for a better odour appraisal. No problem as we had some very pure myrtenol, tertial butyl chromate (just dissolve chromium trioxide in anhydrous tertiary butanol!) which hits the spot for a few grammes. The pure sample confirmed we were onto something very interesting. There was a problem. For a few grammes, chromium oxidation was a quick fix. But tertial butyl chromate is rather dangerous and stoichiometric amounts of chromium would be a nightmare effluent problem, so it was back off to the design board. Citral is made by the 100s of tonnes by vapour phase de-hydrogenation of nerol and geraniol mixture over activated copper knitmesh. The site engineers were very good. A month later I had a very nice laboratory scale rig and we were in the hunt! This did not work out, geraniol and nerol are not cyclic and myrtenol is bicyclic. Therefore when we ramped up the conditions (300°C or so) to get alcohol conversion to aldehyde the ring opened to produce a mess of products with little myrtenal. OK, so we decided to just drop the temperature a bit. Myrtenol was not going to play, there was no useful conversion to aldehyde.



1. RAIL TANKER
Courtesy of IFF

Murphy's Law² struck! Well I did say love affairs have some downs. Oops, another chunk of R&D effort with a dead end!

With no real theory of structure odour relationship, I and other chemists played chemical roulette. This often produced twists and turns as unexpected as any plot of a murder mystery novel. In another part of the laboratory a novel approach to produce L-Citronellol failed as the number of steps and yield made the process uneconomic. However, a by-product of the hydrogen stage produced a secondary (as opposed to the primary desired alcohol for L-Citronellol) alcohol as a by-product. This most unexpectedly turned out to have a fine sandalwood note. Osyrol[®] was launched. Another by-product was a glycol. Glycols are not very interesting perfumery materials. Hey, they do cleave with the right reagent to produce an aldehyde with one less carbon atom, another prize, methoxymelonal. It is too long a story for here but the scale up from a laboratory few grammes to production scale was challenging!

Well, what have I learned from this 50-year relationship with this fascinating Cinderella oil?

The first is well illustrated with the above examples. With chemical roulette there was no idea just what you would turn up in the odour stakes. Here is the lesson, it is easy (well not that difficult) to produce a new odour molecule. With the Monte Carlo roulette wheel you can easily see the

\$ payoff. This is not so with chemical roulette. There was no flashing light to indicate a perfumery jackpot. The real skill was with the creative perfumer to realise there was something worthy of exploitation, a worthy addition to the fragrance palette. In teaching new product development there is a rich file of case studies from penicillin to Post-It[™] pads. I am reminded of a great golfer producing an outstanding long putt. A reporter allegedly asked him how did he feel after that lucky putt? His reply was 'Funny, the more I practise the luckier I get!' The learning point is happy accidents only occur to the prepared mind working in a receptive environment.

This problem is illustrated by blind smelling. If people have a context to smelling a material it can affect their perception of the odour. This is rather like colour in the perception of flavour. Tell people that a terpineol occurs in pine oil and people may think of disinfectant. If you get them to smell it blind, then they can perceive the floral nature. With a new molecule and odour direction the creative perfumer must imagine the potential uses. This is not easy and is a rare skill.

More than once I have attended the British Society of Perfumers New Materials for the Perfumer Symposium to have a molecule we found many years ago being presented. The obvious question was: 'Just how did we miss the value of that?' Making the new chemical was the easy bit - the imaginative bit was the creative perfumer's challenge to



2. STILLS
Courtesy of IFF

find the way to use a novel material. Was it just another nondescript note or did it have the potential to release new fragrance dimensions? Was it a note ahead of its time and the fashion industry was not ready for it? Turpentine oil is not just turpentine oil. Just as Indian and Australian sandalwood are different, American turpentine is different from Scandinavian turpentine oil which is again different from Indian turpentine oil. The closer you get to an oil the more there is to know.

Over 50 years into this relationship I still have a special place for this Cinderella oil. It opens the door to many fragrance directions. Every decade it comes up with a new surprise. You will never look at a pine tree or a paper mill the same way once you have worked with turpentine oil. The spectrum of essential oils is wonderful. However, this one changed my life and provided the scope for my PhD!

1. Cinderella is a female character in a European children's story, she reveals her great beauty with the help of a fairy to go to the great ball. A legion of chemists has liberated truly beautiful aroma materials from turpentine.
2. Murphy's Law: Murphy's First Law: Anything that can go wrong will go wrong (and at the most inconvenient time!). Murphy's Second Law: Nothing is as easy as it looks. Murphy's Third Law: Everything takes longer than you think it will.



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CHINA

CONIFER TREES, PINE CHEMICALS, AND THE SEEDS OF A NEW CHEMISTRY

BY ALAIN FRIX

We live in a world where many products are of natural origin. They are part of our daily lives, and sometimes we don't realise it at all. And we probably don't fully understand the industries behind these renewables.

An example of such an industry is the pine chemical industry, which encompasses all products from the conifer processing industry.

This article attempts to describe very briefly the general dynamics of the pine chemical market, how the demand of the different industries evolves according to new opportunities, and its impact on materials and availability.

An ideal platform to understand the complexity of the pine chemical industry is the annual International Conference organised by the Pine Chemicals Association (PCA), led by its President & CEO Mrs Amanda Young. Many relevant and important topics are discussed there, as was the case at the Pine Chemicals Association International Conference 2022, which was successfully held in Denver, CO, USA, from 25th to 27th September.

Conifers capture several billion tons of carbon dioxide from the atmosphere each year. They patiently integrate the carbon parts into a very complex biomass, whose molecules - all biochemical - will find many industrial applications such as lumber, paper and a myriad of useful chemicals that are grouped under the term "pine chemicals".

Pine chemicals are very important raw materials for adhesives, inks, emulsifiers, soaps, detergents, automotive, pharmaceuticals, animal feed, construction, agriculture, paints, cleaners, food, perfumes, camphor, and recently they are facing a strong demand for biofuels, which is changing some of the traditional dynamics.

There are hundreds of pine chemicals, but the main commercial products are

lignosulfonates, tall oil rosins, tall oil fatty acids, tall oil pitches, and gum rosins.

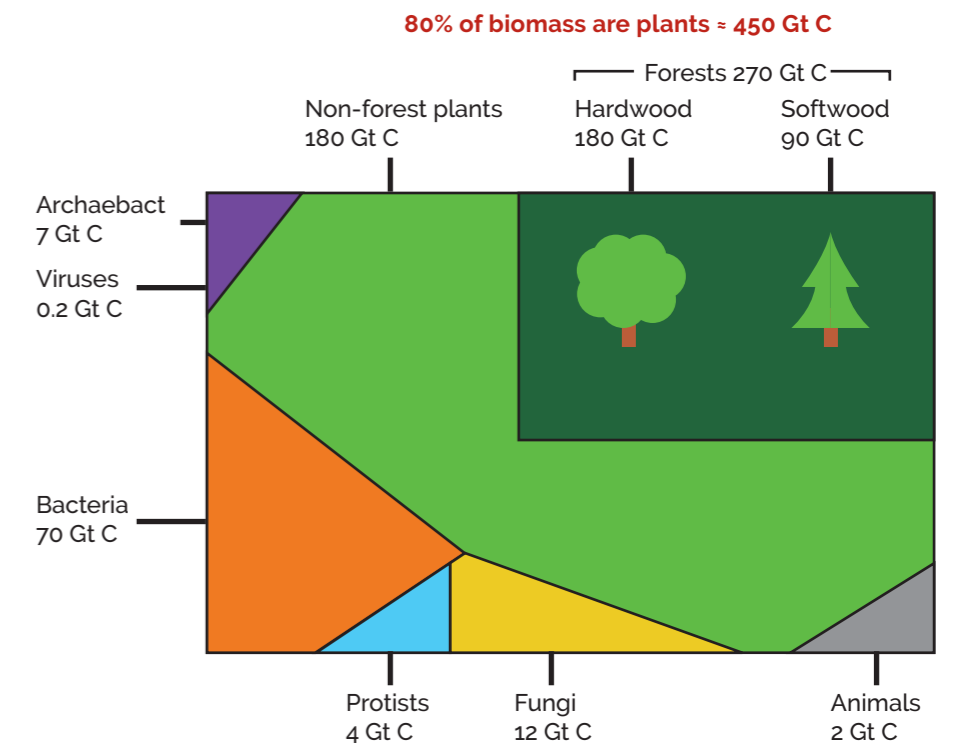
Smaller products such as crude sulphate turpentine (CST) and turpentine gum (GT) are probably familiar to you, although they represent only a fraction of the chemicals in the pinewood. Yet, for the perfume industry, the availability of turpentine is extremely important: without turpentine, and especially without its derivatives, perfumers would have to create perfumes in absence of dihydromyrcenol, Iso E Super, terpineol, synth sandalwood, iso bornyl cyclohexanol IBCH, iso camphyl cyclohexanol ICCH, etc. The non-availability of turpentine would remove 15% of the perfume ingredient palette by weight. More importantly,

this would divide the existing renewability of fragrances by two, leaving mainly essential oils as the only substantial supplier of renewable materials. In this case, it would then be very likely that petrochemically derived ingredients would replace the void left by turpentine, due to cost. In other words, fragrances would become even less renewable.

LET'S TRY TO GO BACK UP THE BIOMASS CHAIN

Conifers are part of a very important biomass since - according to several studies of the United Nations and a recent study of the US National Academy of Sciences (PNAS) - coniferous (softwood) forests are among the largest reserves of "living" carbon in the world (Fig-1).

FIG-1 THE BIOMASS DISTRIBUTION ON EARTH



There are about 550 gigatons of carbon (Gt C) of biomass distributed among all kingdoms of life.

Source: The Biomass Distribution on Earth, May 21, 2018. Proceedings of the National Academy of Science (PNAS), USA 115 (25) 6506-6511

WHERE THE WORLD COMES TO ITS SENSES

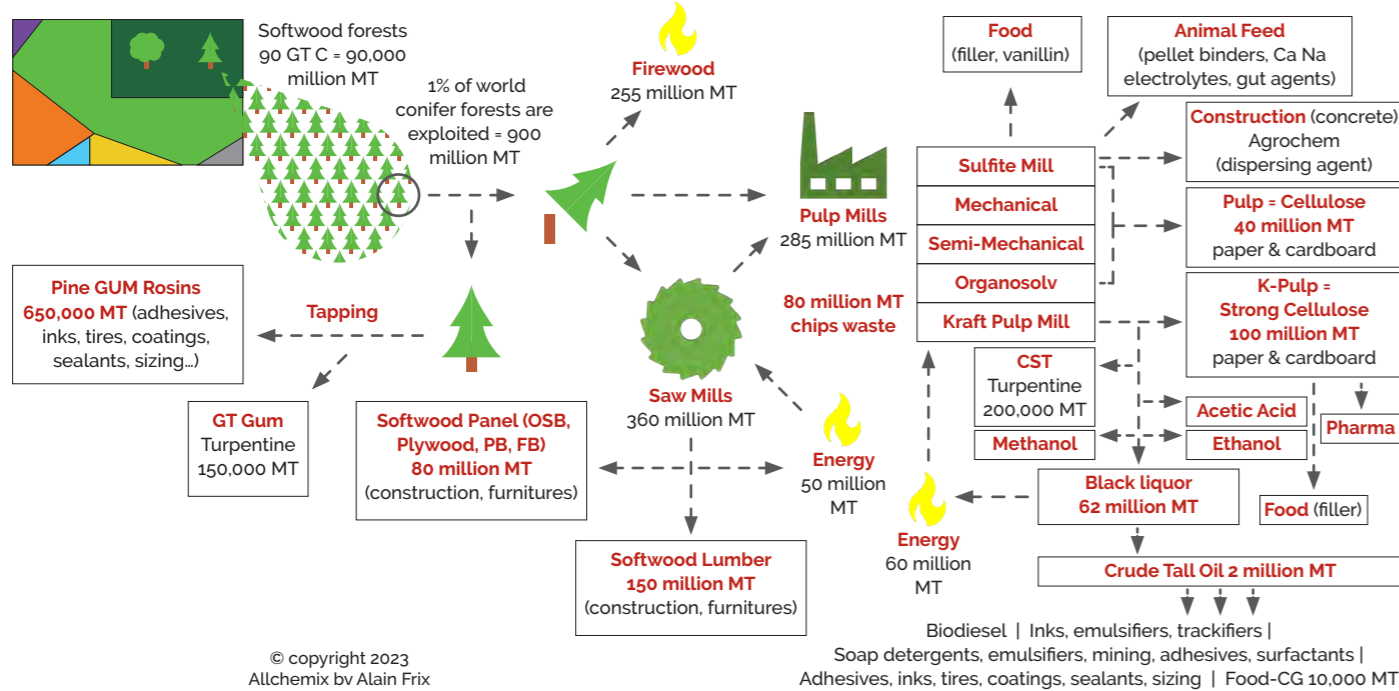
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Moringa oleifera

CONIFER TREES, PINE CHEMICALS, AND THE SEEDS OF A NEW CHEMISTRY

FIG-2 GLOBAL SOFTWOOD BIOMASS FLOW (IN MT OF C)



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These coniferous forests are relatively little used by people (nearly 1% of the world's supply is exploited) because they are often inaccessible, being particularly present in boreal, cold, and swampy regions.

It is estimated that just under one billion tonnes of conifers are felled each year, often in a controlled and responsible manner. After a first natural drying in forests, the trunks are sent to sawmills and paper mills. Local consumption for domestic firewood is important, but sawmills are the biggest consumers of wood. These sawmills generate a lot of wood waste that is, most of the time, recycled or sent to paper mills that add it to the wood coming directly from the forests.

Paper mills all have, as a key objective, to extract cellulose fibres from wood, these are D-glucose biopolymers and main constituents of the plant cell wall. Cellulose represents nearly 40% of the weight of dry wood. This extraction requires a significant amount of energy and water, in particular to decompose the lignin fibres, a real plant cement that represents 28% of the dry weight of the tree. It is after pressing and drying the cellulose pulp that we obtain paper or cardboard. The world consumption of cardboard is increasing as the packaging of choice for e-commerce items.

These wood, panel, and paper industries have a combined estimated turnover of over US\$250 billion per year and represent a significant income for many areas. According to their transformation process from wood to paper, paper mills will generate an important series of organic co-products that are much varied and very useful to a dozen industries.

Fig-2 shows in a schematic and simplified way the biomass flows that feed different industries.

The rapid shift in global demand towards more renewable consumer products and the evolution of biodiesel subsidies are strongly impacting biomass prices and allocations, especially for crude tall oil derivatives (Fig-3).

Some organic resources that have had industrial applications for decades are now being used for biofuel. This raises many questions because the granting of public subsidies by some countries to burn natural resources that are very useful for other industries seems to be a nonsense in relation to a sustainable economic policy.

In socio-economic terms, the conifer industry is a great provider of jobs in rural areas. Not only sawmill and pulp mill activities, but even a smaller industry such as pine gum

tapping is a labour intensive industry: the number of farmers involved in tapping itself has been greater than 100,000, and over 300,000 people are very likely relying on the pine gum industry for a living worldwide, including farmers, crude gum collectors, dealers, and gum rosin processing operators.

SEEDS FOR A NEW CHEMISTRY

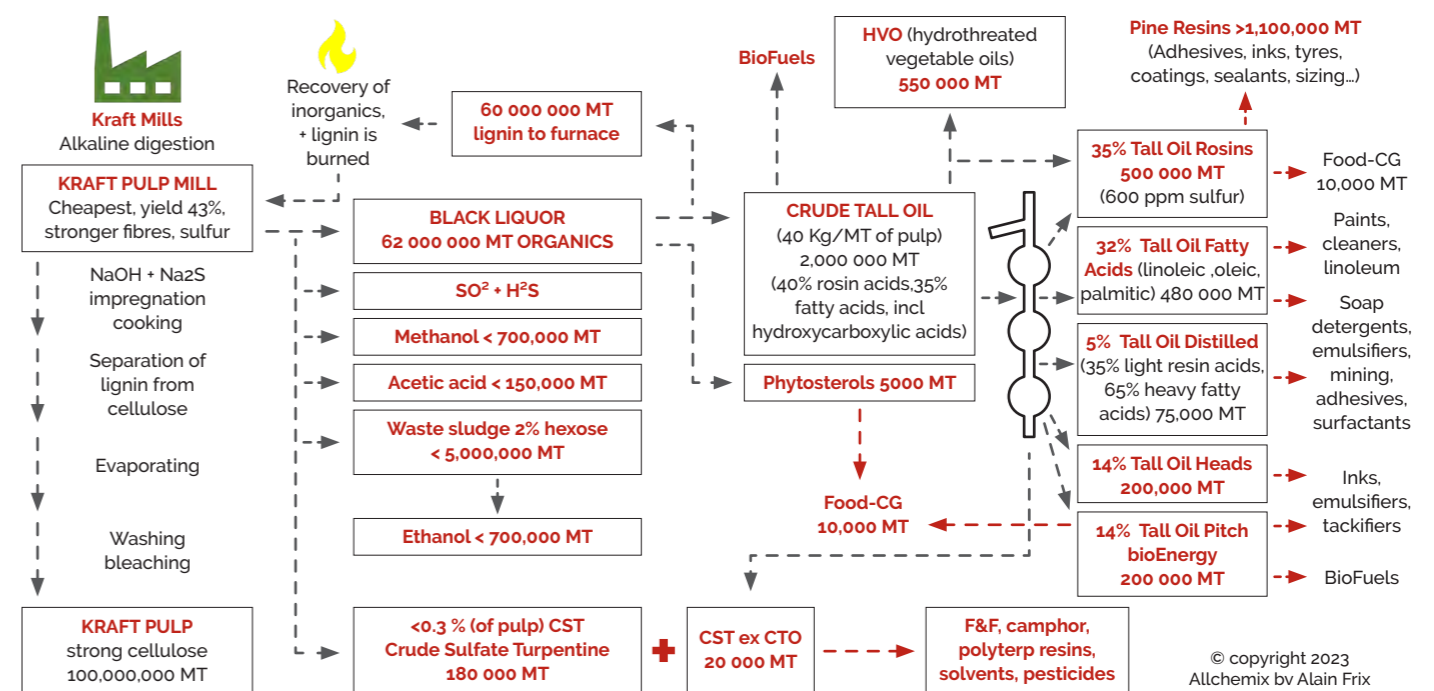
The petrochemical industry - with an output of over 400 million MT per year - has needed 150 years to produce polymers with some efficiency and minimise waste. The coniferous chemistry industry, although much smaller, is becoming a hub for the development of a new chemistry, that of new polymers of natural origin, similar to petrochemical polymers.

With an industrial access to 900 million MT of organic products, the conifer biomass industry is certainly destined for a promising future.

This renewable chemistry can also be combined with petrochemistry, and "hybrid" molecules, partially petrochemical and partially from biomass, being produced with good traceability.

Not to be confused with the concept of "mass balance" which is mainly limited to certifying the mixtures

FIG-3 KRAFT PULP MILLS & CRUDE TALL OIL



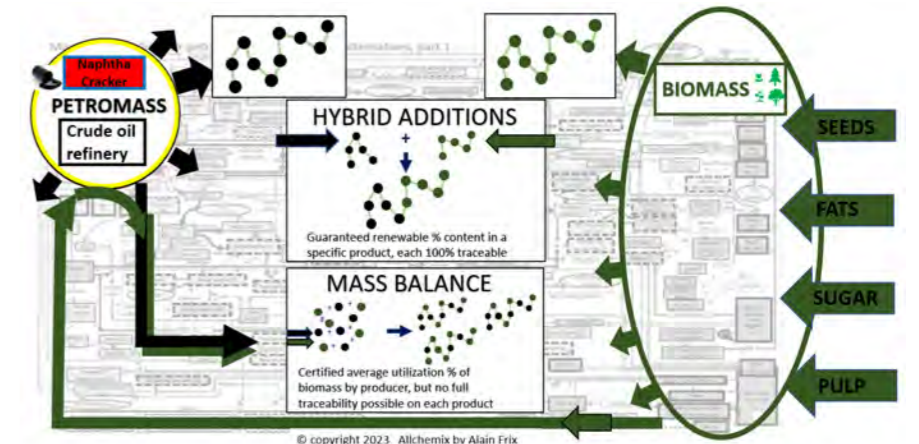
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of organic materials (x% oil and y% biomass) before the cracking process in refineries (Fig-4).

However, the technology is still far from optimal: nature is recalcitrant, many very complex molecules such as lignin from conifers, are extremely difficult to process and to "simplify" if one wants to break them down into monomers in a reproducible way. And yet this is necessary in order to recreate polymers similar to those of the petrochemical industry. It will take years for humankind to create the optimal conditions and to cleverly break down wood, which nature has patiently done for millions of years by breaking down fossil biomass into oil. In addition to the technicality, the interactions between global industries, and political subsidies, make conifer biomass a very complex sector. Fig-5 provides a snapshot of what this industry might look like today.

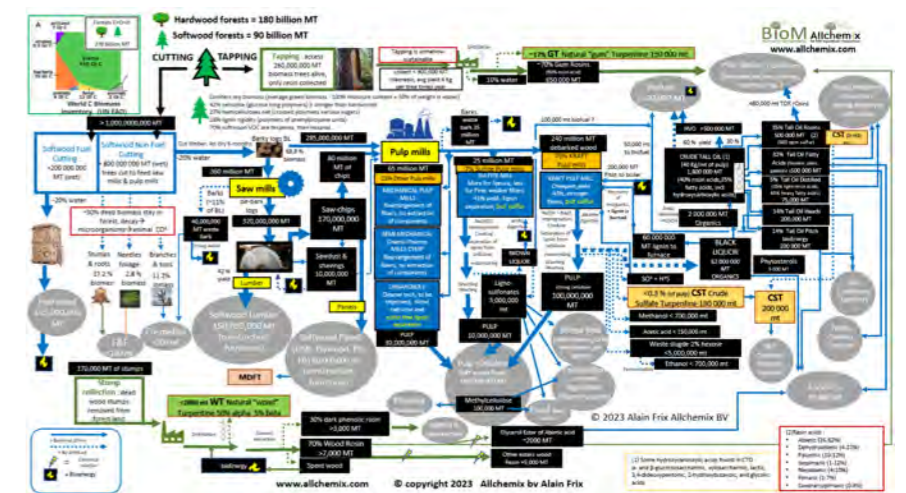
In a later work, pine chemicals experts such as Mr Michel Baumassy (Forchem Oy), Mr Alex Cunningham (BPC Institute), Mr Leonardo Siquiera (Argus Media), Mr Vitaly Rogachevsky (Vitrina LLC.), Dr Emmanuel Cazeils (Firmenich-DRT), Pierre Saricassapian (Firmenich-DRT), will be invited to share their views on the complexities and the specificities of CTO derivatives, biofuel, and other pine chemical products.

FIG-4 FUTURE CONJUNCTION OF BIOMASS CHEMICALS AND PETROCHEMISTRY HYBRID MOLECULES FROM PETRO + BIOMASS, DIFFERENT CONCEPT THAN MASS BALANCE



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FIG-5 OVERVIEW TODAY'S GLOBAL SOFTWOOD BIOMASS STREAMS



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2023 CHINAEASA CONFERENCE

2023 CHINA ESSENTIAL OIL FORUM

May 24-27, 2023 Fuzhou city, Fujian Province, China



CHINAEASA
Fuzhou 2023

The 18th Conference on Essential Oil & Aroma & Flavor & Fragrance

The Only International F&F Conference in China

Best Opportunity to Know and Meet China F&F Industry



Host: CHINAEASA – China Essential Oil, Aroma and Spices Association
en.chinaeasa.cccfna.org.cn
liyi@cccfna.org.cn

IFEAT

SOCIO-ECONOMIC REPORT ON OREGANO FROM TÜRKIYE

BY KAZIM GUREL¹, UFUK BEGISI²
AND HUGO BOVILL³

- 1 President and CEO of Kutas Group
- 2 General Manager, Kutas Group
- 3 Ajowan Consulting

INTRODUCTION

Oregano is an endemic plant growing throughout the Mediterranean. The genus *Origanum* (tribe Mentheae, Labiatae family) is characterised by a large morphological and chemical diversity. The major essential oil constituents are carvacrol and/or thymol, accompanied by p-cymene and g-terpinene.

Oregano is a perennial and only comes to full yield during the second year of growth and can continue to provide a good harvest with decent yields for five to six years. It is a plant that must be propagated, and seedlings

are planted in fields at altitudes of between 300 – 1,600 metres in the early spring, reaching harvest maturity by July. The plant is resistant to both high and low temperatures and in some years it can be covered with snow in wintertime.

USES

Oregano has been used by many ancient civilisations for centuries for both culinary and medicinal purposes. It has become a very popular herb from a combination of its introduction to the non-Italian/Mediterranean population during the Second World War with American soldiers visiting the continent, along with immigration to the Americas and northern countries in Europe. The advent of the pizza and Italian-type sauces globally and a considerable increase in tourism within Europe were strong influences. Now a

staple of many cuisines for the western palate, it is a feature of kitchens both domestic and industrial the world over.

PRODUCTION

The considerable increase in demand and the increasing price of labour has led to the cultivation of the product migrating from Italy and Greece to Türkiye where currently over 85% of the world's oregano is cultivated and processed. Today oregano is almost entirely harvested in and around the mountains of Denizli in Türkiye, and in Albania and Greece, where it is mainly cultivated and mechanically harvested. Wild harvesting is very rare.

An estimated area of 85,000 hectares is grown in the Denizli area, mostly on smallholder farms which are owned and managed by smallholder families. After the de-monopolisation



KUTAS FACILITIES



PLANTING



WEEDING



OREGANO FIELD



HARVESTING



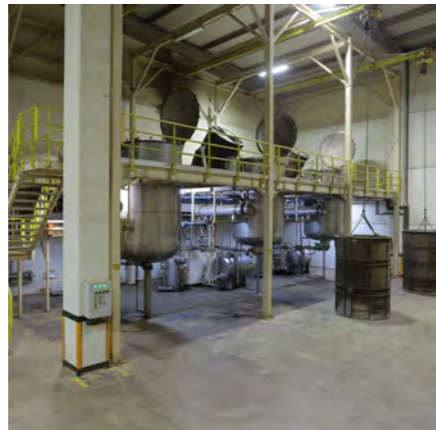
TRANSPORTING



PROCESSING



DISTILLATION UNITS



DISTILLATION UNITS



LABORATORY FACILITIES

of the Turkish tobacco industry in the early 2000s, oregano as a crop was introduced to the Denizli area. Due to the farmers' experience with tobacco, which has similar field preparation characteristics, it was a relatively easy substitution.

Crop sizes of the dried herb have grown from an initial start of 3,000 tonnes to over 23,000 tonnes in 2022. It is estimated that there are 8,000 farmers of oregano in the Denizli region and with the support functions of labour, transport, and others, this crop affects the lives of around 50,000+ individuals in Türkiye alone.

As previously stated, the oregano crop has been increasing and has been a successful and profitable product for the Denizli farmer base until now. After a generation of Turkish commercial large-scale cultivation, a new second generation is entering the business with consolidation of some fields as some farmers and investors are purchasing neighbouring farms along with investments in new plant and equipment, thereby ensuring the future of the crop. The devastating 2023 Turkish earthquake took place some 1,000 kilometres away from the oregano growing area and has had no direct impact on production levels.

RESIDUES AND ADULTERATION

In recent years, the introduction of strict legislation on the use of pesticides has caused considerable challenges to growers, but these have been mostly overcome by judicious field officers and the use of traditional organic farming methods.

What started as a way to reduce the levels of radiation in oregano herb after the Chernobyl nuclear incident in 1986 has become a very profitable tool to increase the profits of unscrupulous traders and buyers both in Türkiye and around the world.

This is by no means just a local issue; rather buyers from the EU and USA have even provided formulas to their suppliers giving their preferred adulterants and percentages.

Sumac leaves were first used during the Chernobyl era, this then evolved to cistus. When it was found that these additions reduced the volatile oil content of the resulting blend, myrtle leaves were added. Myrtle has a volatile oil that when distilled along with the oregano oil leads to an increased oil content, but only further analysis will reveal that it is not oregano oil. The oil reveals that the herb is not 100% oregano.

In the last few years all pretence at masking has been dropped and olive leaves are now the prevalent source of adulteration.

OREGANO ESSENTIAL OIL

Essential oils have been produced for many years in Türkiye using small-scale artisanal production methods with a range of wild grown items such as oregano, sage, and other herbs, and the rose oil industry has been well established for decades. The

distillation of medicinal plants was in the past an off-season activity of the rose oil distillers.

With the growth of large-scale oregano cultivation in Türkiye in the last 25 years, oregano oil production has also increased dramatically to many tens of tonnes and new companies, who were experienced in the medicinal plant distillation, were established.

Distillation is carried out using mostly Turkish designed and constructed plant.

Traditional major markets for oregano oil were aromatherapy, and the food supplement and feed industry, due to its anti-microbial and antioxidant properties. Animal feed applications were mainly for poultry and livestock for many years with appreciable increases in animal welfare and yields. Much research has been conducted on the usage in such fields and with concerns over antibiotic usage this is very valuable. It has been shown that when oregano oil is used in combination with antibiotics, they have an antagonistic effect leaving both ineffective.

The advent and growth of the USA aromatherapy trade has encouraged new producers to enter the market. Much of this oil has been exported to Eastern Europe for re-export.

Oil adulterated with synthetic carvacrol has been common in the market outside Türkiye, Albania, and Greece but with some recent re-evaluated simple testing methods this should become less prevalent.

Oregano oil is produced not only in Türkiye but also throughout Eastern Europe, Greece, Albania, France, USA (captive), Kenya, and Morocco.

In Mexico 3,000 - 4,000 tonnes of wild *Lippia graveolens* (so-called Mexican oregano) herb is harvested and dried, 40% of the production is shipped to Türkiye. No oil is commercially produced, but theoretically the Mexican oil would be rich in thymol.

The map below shows the location of the mountains where oregano is grown and its relationship to the rose growing areas of Isparta and Antalya

The areas in red show the earthquake area. Adana is 1,000km from İzmir.



SUMMARY

- Oregano (*Origanum* tribe Mentheae, Labiatae family) is a perennial plant growing throughout the Mediterranean usually at altitudes of 300 – 1,600 metres. The major essential oil constituents are carvacrol and/or thymol, along with p-cymene and g-terpinene.
- Used for centuries for culinary and medicinal purposes, demand has grown quickly in recent decades. It is now used worldwide as a staple of Mediterranean cuisines, particularly in pizzas, alongside increased demand from the aromatherapy and animal feed sectors.

- Türkiye dominates production and processing accounting for some 85% of global output. Production is centred on smallholder farms around the Denizli mountains, with approximately 85,000 hectares under cultivation. Production of the dried herb in 2022 was 23,000 tonnes. Wild harvesting is now very rare with mechanical harvesting dominating.
- Oregano was substituted for tobacco growing in the early 2000s and some 8,000 smallholder farmers in the Denizli region are growing oregano, which provides incomes for 50,000+ individuals in Türkiye alone. Continued investment and consolidation is taking place to ensure the sector's future.
- Other producing areas include Albania and Greece. In addition, Mexico produces 3,000 - 4,000 tonnes of dried herb from wild *Lippia graveolens* (so-called Mexican oregano) with 40% shipped to Türkiye. No oil is commercially produced, but theoretically the Mexican oil would be rich in thymol.
- Over the past 25 years there has been a sizable expansion in Turkish oregano oil production using mainly local equipment. Also, the oil is produced throughout Eastern Europe, Greece, Albania, France, USA, Kenya, and Morocco.

IFEAT ANNOUNCES ACQUISITION OF ICATS

IFEAT is delighted to announce that it has completed the acquisition of the International Centre for Aroma Trades Studies (ICATS).

ICATS was formed by industry expert, Dr Tony Curtis, formerly of Bush Boake Allen, and David Williams, consultant and author on essential oils. Dr Tony Curtis and David Williams are joint authors of the definitive textbook, *An Introduction to Perfumery*.

The IFEAT Diploma was developed for the aroma trades industry to provide flexible, in-depth specialist education aimed at those working in the aroma trades and associated industries. ICATS has been providing education for the aroma trades industry for over twenty-five years, including a former BA Business of Perfumery course at the University of Plymouth in the UK.

IFEAT made annual donations to Plymouth to help support the course as well as fund library texts on perfumery and flavourings. The first BA graduates entered the industry in 1998. The BA course ran alongside the IFEAT Diploma in Perfumery which was a distance learning course. The IFEAT Diploma was originally developed in 1980 when Murray-Pearce worked closely with David Williams and Terry Pickthall of CPL Aromas to launch the IFEAT supported Perfumery Education Centre (PEC) during the second IFEAT World Council meeting at the Cannes Congress.

ICATS later developed the IFEAT Diploma and relaunched it as a postgraduate programme in 2009 and then offered a flavour pathway a little later, with the late Mike Boudjouk

closely involved as IFEAT's Education Committee Chair. The British Society of Perfumers (BSP) also supported the course.

Henry Gill, Vice Chair of the IFEAT Education Committee, said; "*This exciting development will enable IFEAT to expand its educational offerings to Members. Through engagement with the Membership, the existing IFEAT Diploma will be enhanced by broadening both the scope and flexibility, thereby better addressing the many challenges our industry faces globally.*"

More details about the IFEAT/ICATS education programmes will be released in due course.



ORIGANUM VULGARE

Join the IFEAT Team!



IFEAT is looking for applications for a full-time employee/consultant to join the existing team as Chief Scientific Officer.

The IFEAT position of Chief Scientific Officer has expanded and IFEAT is now seeking a full-time candidate for this position to join their existing team, which now covers IFEAT's increasing work in the area of regulatory pressure, together with other industry players. This work includes the scientific testing and results needed to contribute to this dialogue. The ideal candidate should have the ability to see the commercial value of projects and programmes within the IFEAT Scientific Committee and to spearhead and publish technical publications with IFEAT Committee members in the trade press.

Preferred requirements include the following:

- Understanding of analytical methodologies related to and / or important to the essential oil industry
- Knowledge of ingredient safety requirements supporting the safe use of essential oils and essential oil derivatives
- Ability to interface technically with outside analytical solution providers
- Knowledge of the global regulatory environment and its impact on essential oils and essential oil derivatives
- International labelling requirements for hazardous and non-hazardous goods related to import and export
- Understanding of SQF requirements as it pertains to facility, ingredient and finished product safety
- Working knowledge of REACH requirements and global regulatory changes
- Understanding of biotechnology technologies and ability to elucidate on their global acceptance and use

For a full job description and to apply, please visit: <https://bit.ly/3l7au3K>

SCIENTIFIC NEWS

PUBLICATION OF THE LABELLING MANUAL 2022

The IFRA-IOFI Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Task Force has now finished its work preparing the 2022 Labelling Manual (LM), which is distributed together with IFRA IOFI Information Note 1148.

The LM contains all classifications that have been ratified by the GHS TF since its creation in autumn 2008. The Manual assigns hazard classifications following the rules of the UN GHS guidance document (Purple book) and focuses on fragrance and flavouring ingredients used by our Industry.

The IFRA-IOFI Labelling Manual is now a single document consisting of an Introduction (formerly the Introductory Document), the Labelling Manual 2022 embedded as an Excel icon (before the Appendixes) and an Annex I with the "Terms and Conditions of Use of the IFRA-IOFI Labelling Manual", also embedded as an icon.

All files mentioned are available for direct download to IFEAT Members on the IFEAT website at: <https://bit.ly/3jG3TNC>

The Introduction contains a disclaimer and gives some general considerations and specific details on how the 2022 LM has been generated.

The Terms and Conditions are particularly relevant when sharing and using the LM outside your company/organisation, for example when you share it with service providers for the implementation of the data in your respective software applications.

In line with established practice, after the publication of the Manual, the membership is encouraged to implement the new or modified classifications within six months.

During 2022, the GHS Task Force evaluated 205 flavour and fragrance chemically-defined substances (CDS), 55 of which were newly added to this updated version.

Finally, it should be highlighted that the LM classifications do not

reflect deviations resulting from regional or national implementations. Nevertheless, the GHS TF may provide help, upon request and if found appropriate, in the case that regional or national implementations of the GHS deviate from the LM.

FURTHER DEVELOPMENTS ON THE CLASSIFICATION OF BENZALDEHYDE (CAS 100-52-7; JECFA 22)

Together with the publication of the 2022 IFRA-IOFI Labelling Manual, we would like to inform you about further developments on the classification of benzaldehyde (CAS 100-52-7; JECFA 22; FEMA 2127; FL-No. 05.013).

The IFRA CMR Working Group, prior signature of the corresponding NDA with the lead registrant of this product under REACH, had access to the full reports of the original toxicology studies in December 2022.

After reviewing the data and the overall situation, the IFRA CMR WG concluded the following:

- The data reinforce that CMR 1 is clearly not justified and even questions the justification for CMR 2
- The classification in the REACH dossier is confusing, with three different entries that are not aligned
- An OECD 443 study is still ongoing (Extended One-Generation Reproductive Toxicity Study)
- The recommendation is to not classify benzaldehyde as Rep 2 in this LM 2022 but to wait for the complete data to be available before making any conclusions

As a result, the IFRA-IOFI Labelling Manual 2022 will NOT list benzaldehyde with a Rep.2 classification.

If you have any further questions, please contact:

Cristina Arregui at IFRA by email: carregui@ifrafragrance.org
Jonathan Bonello at IFEAT by email: scientific.enquiries@ifeat.org

FRAGRANCE MATERIAL SAFETY ASSESSMENT CENTER

The Research Institute for Fragrance Materials (RIFM) has partnered with Elsevier on the Food and Chemical Toxicology Fragrance Material Safety Assessment Center to provide open access to RIFM's peer-reviewed Safety Assessments and related papers and research.

RIFM evaluates available data and sponsors studies for relevant toxicological endpoints for local and systemic human health effects, including genotoxicity, repeated dose and reproductive toxicity, skin sensitisation, photoirritation/photoallergenicity, and local respiratory toxicity. RIFM also sponsors testing and academic research on the fate and effects of fragrance materials in water, soil, sediments, and air, working closely with international research organisations to assess the behaviour and risk of chemicals in the environment.

RIFM compiles its findings, along with other relevant data, into Safety Assessments for each material currently in use by the fragrance industry. The Expert Panel for Fragrance Safety, an independent, international team of researchers and academics with no ties to the fragrance industry, reviews and must approve all of RIFM's Safety Assessments before RIFM submits them for peer-reviewed publication. RIFM Safety Assessments are written according to the guidelines outlined in the Criteria for the Research Institute for Fragrance Materials (the "Criteria Document") safety evaluation process for fragrance ingredients. The Criteria Document provides guidance on conducting safety assessments and is designed to incorporate the best science to appropriately evaluate fragrance ingredients of both natural and synthetic origin using the latest testing strategies and methods. The assessments may be found by using the search feature on the website. Group Studies and Background Studies that predate the Criteria Document may be found in the Historical Data section.

RIFM Safety Assessments are dynamic, "living" documents, and RIFM re-

evaluates materials on a rolling five-year basis to help ensure safe conditions of use. When a Safety Assessment is updated and published, only the most up-to-date version will be available on this resource centre. (Previous versions of the safety assessments will always be available on the Food and Chemical Toxicology site or from Science Direct). A list of RIFM safety assessments that have been reviewed with no changes will also appear on this resource centre.

IFEAT sponsors a collaboration with RIFM on the safety evaluation of fragrance materials, including the assessment of essential oils and Natural Complex Substances (NCSs). The objective of the project is to keep building a recognised database on the safety and toxicology of NCSs that is accessible to IFEAT Members. We believe this information is invaluable in promoting the safe use of products to governments, regulatory bodies and to the public.

Link:
<http://fragrancematerialsafety.resource.elsevier.com>

ISEO 2023

The 53rd International Symposium on Essential Oils (ISEO 2023) will take place from 13th to 16th September, 2023 in Milazzo (Messina), Italy.

The topics of the Symposium will include all aspects of essential oils and related natural products ranging from analysis & characterisation, biogenesis, chemistry, biological activity, residues & contaminants, regulatory aspects and consumer utilisation including recently emerging applications such as aromatherapy.

Essential oil scientists, producers, users and all other interested persons are cordially invited to register and participate in this 53rd International Symposium on Essential Oils (ISEO 2023).

The format and the atmosphere of ISEO 2023 will be similar to that of the previous successful meetings. The conference will include scientific sessions and exhibition of instrumentation, natural products and essential oils, informative and advertising materials as well as

opportunities for B2B exchanges. The opening ceremony of the symposium will be dedicated to the presentation of the ISEO Medal of Honour which was awarded during the 50th anniversary of the ISEO meeting in 2018 and at every subsequent symposium in recognition of lifetime achievements in the field of essential oil and natural complex substances research.

In support of ISEO and to encourage the work of young researchers in the field of essential oils, IFEAT typically sponsors up to 20 Young Scientist Fellowships which includes reimbursement of the ISEO conference registration fee. In addition, the IFEAT Chief Scientific Officer is a member of the ISEO Permanent Scientific Committee.

Further details and registration are available at the following link:
<https://www.iseoils.com/index.php/iseo-2023>

The deadline for early registration is 15th June 2023.

Please contact scientific.enquiries@ifeat.org with any questions.

IN THE NEWS



RIFM ELECTS NEW PRESIDENT

The Research Institute for Fragrance Materials (RIFM) Board of Directors Chair, Robert Weinstein, Ph.D., announced the election of Anne Marie Api, Ph.D., as its new president. Dr. Api joined RIFM in 1984 and has served as Vice President since 2006. She succeeds James R. Romine, Ph.D., who retires on 31st March 2023.

"The RIFM Board was struck by Dr. Api's leadership under the guidance of Dr. Romine as she raised the bar on RIFM's science while fostering the vibrancy of the culture," Dr. Weinstein explained. "We have great confidence in Dr. Api to build on this momentum and take the organization [sic] to the next level."

Dr. Api's scientific collaborations and

mentorship play a primary role in RIFM's fragrance safety leadership and some of her most impactful contributions include contributing to the development of the RIFM Database, serving as project lead for the Aggregate Exposure Model designed by Creme Global, and as a lead author of the Quantitative Risk Assessment (QRA) for Fragrance Ingredients. Her expertise shaped QRA's successor, QRA2, which guides the fragrance industry's global standards. In addition, she led RIFM into its non-animal approach in the early 2000s and continues to drive the expanded use of alternative methods. Dr. Api also codesigned the ground-breaking EDEN project, which quantifies the true prevalence of contact allergy in the general population. In 2018, she received the Philippe Shubik Distinguished Scientist Award from The Toxicology Forum, a global award honoring individuals who have made significant contributions to the field.

"I am thankful to the RIFM Board, Dr. Romine, and my wonderful co-workers and colleagues, many of whom I have worked with for decades," Dr. Api said. "RIFM has never been stronger, and I look forward to continuing to deliver on our critical mission to build universal acceptance and trust in the safe use of fragrance materials through applied science and research."

SUSTAINABILITY: Essential to success in the European spice sector

Sustainability has been a priority in the European spice sector for many years. And now, the subject is getting a new boost. This is due to increased commitments from European companies and new regulations in Europe. As a supplier to Europe, sustainable practices are no longer voluntary; they are essential for success. To read the full article, visit the following link: <https://bit.ly/3jyears>

NEW IFEAT MEMBERS

Below is a list of new IFEAT Members who had joined by 21st February 2023

Balsam Consulting

60 Rue Laugier, 75017 Paris, France

Contact: Mr Dominique Roques

Email: dominique.roques117@gmail.com

Created by Dominique Roques and based on 35 years experience in the F&F industry, Balsam Consulting offers advice on the scope of natural products for perfumery/aromatherapy producers and users.



Fricke Abfulltechnik GmbH & Co. KG

Gewerbepark Meissen 8, 32423 Minden, Germany

Contact: Ms Ina Schnelle

Email: ina.schnelle@frickedosing.com

Contact: Mr Daniel Druschke

Email: daniel.druschke@frickedosing.com

Web: www.frickedosing.com

Fricke Abfulltechnik GmbH & Co. KG from Minden is a specialist in the development of dosing and filling systems for the perfume and aroma industry.



Jiangxi Crown Capital Fragrance Ltd.

East side of Yan Hua Avenue, Salt Chemical Industrial Zone, Zhangshu, Jiangxi, China

Contact: Mrs Shannon Wang

Email: shannon.wang@city-flower.com

Contact: Ms Alice Zhang

Email: capital@pub.guangzhou.gd.cn

Web: www.crown-capital.com

Crown Capital, a subsidiary of City Flower China, is a manufacturer of Yara Yara, Bromelia, AC, AH, MCK, CME, and raspberry ketone.



Enteroil Joint Stock Company

Lot 43 DI Quang Minh Industrial Zone, Quang Minh District, Ha Noi, Vietnam

Contact: Mr Nguyen Duc Hong

Email: enteroil@enteroiljsc.com

Web: https://en.enteroiljsc.com.vn

We were formerly a long-time Member of IFEAT with the old name of Essential Oils and Aroma Joint Stock Company, now known under the new name of Enteroil.



Jiangsu Rich Native Animal Products Co., Ltd

Rm 1409, Building A, Phoenix Culture Square, 211 Jiangdong Middle Road, Nanjing, China

Contact: Ms Moonie Hong

Email: import@njrich.com

Web: http://njrich.com/Helps/aboutus.html

https://citruscn.com

Jiangsu Rich Native Animal Products started in 2002, focusing on the import of citrus juice and essential oil with a rich experience.



Virginia Aromas & Essential Oils, LLC

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