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THE FIRST TRULY INDEPENDENT WATCHDOG FOR THOSE
WORKING WITH NATURAL AROMATIC MATERIALS

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§1. Comment.

Although some nine months or so have elapsed since the last *Cropwatch Newsletter*, Cropwatch has been far from inactive. Numbers of subscribers to the *Cropwatch Newsletter* continues to rise at a frightening pace, and answering queries from natural product users, and discussing technical matters with researchers and aroma company employees, has become a full-time job. But the main event since last October has been delivering the fourth and fifth in the series of natural aromatics anti-regulation lectures, firstly to the British Society of Perfumers (BSP) Safety Symposium in Cambridge in March 2010 “Is Excessive Regulation Destroying the Perfumery Art?”, and then to the World Perfumery Congress (WPC) in Cannes in June 2010 “The Role of Risk Aversion in the Decline of the Perfumery Art.” The BSP presentation material was probably the best attempt I have made at the subject, but clearly polarized the audience, made up as it was, of a fair proportion of employees from the larger corporates. This latter address can be found at <http://www.cropwatch.org/Tony%20Burfield's%20talk%20to%20BPS%20final.ppt>

The WPC lecture attempted some different slants on the subject, and has quickly led to even more requests to talk to professional groups in various parts of Europe/Africa. Again this presentation can be found on the Cropwatch website, at <http://www.cropwatch.org/Tony%20Burfield%20at%20Cannes%202010.ppt>

The presentations raise a number of issues for the continued use of existing ingredients and the restrictions facing the working perfumer. Some of these are summarised at Slide 20 of the WPC presentation, and include:

1. The end of the ‘Overdose’ technique, a strategy first identified by Martin Gras of Dragoco.
2. The unresolved FuroCoumarins (FC’s) in citrus oils issue.
3. The limitation of allowable concentrations of weak rodent carcinogens in finished goods (methyl eugenol, methyl chavicol & safrole) and therefore of the natural aromatic products that contain them.
4. The labelling issue for sensitisers: alleged and otherwise.

5. Contentious ingredient restrictions for vanillin, coumarin, tea tree oil, tagetes oils & absolutes and a host of others.

The presentations also highlight the role of SME's & interest groups in directly opposing & changing proposed draconian legislation in various fields, a task which the larger aroma industry companies have collectively failed to do for their own profession, for reasons which are unclear (but according to some fairly bitter private comments from delegates, might have a lot to do with the lack of comprehension amongst chief executives of leading companies of how the business actually works at all levels!). It should also be noted in passing, that again with respect to the impact of legislation on SME's, the Cosmetics Commissioner, Sabine Lecrenier, stated in a mail to Cropwatch in 2007 concerning the FuroCoumarins (FC's) in citrus oils situation: "Furthermore, if a restrictive measure would be envisaged, a public consultation, via our website, on economic impact would need to be carried out that because of this threat of financial discrimination, the measure to limit FC's would not go through." But to date, we are unaware of any mention of any public consultation on the issue.

Cropwatch has meanwhile continued to expand the *Cropwatch Files* section of its website at <http://www.cropwatch.org/cwfiles.htm> where an alphabetical list of topics in which Cropwatch has been involved is displayed for perusal or download. Recent additions include new monographs in the minor essential oils series, on *Backhousia citriodora* oil, *Santolina chamaecyparissus* oil & Karo-Karoundé qualities, on 'banned' essential oils, and the continual expansion of the aroma-based bibliography sections (e.g. new entries for myrrh & other *Commiphora* spp., & for safrole). In an age when detailed information on technical matters usually involves costs to the enquirer, we feel that extending this free facility should remain central to Cropwatch's endeavors.

§2. The Elephant in the Room: that 'Not So Sexy' CSC Report...

[Article somewhat modified & updated from a first appearance on *Aromaconnection* 10th June 2010].

For some time Cropwatch has been maintaining that the cosmetic (fragrance) industry, the detergent & cleaning industry & the aroma ingredients (essential oil) industry suffer disproportionate and wildly over-precautionary levels of regulation in the EU, compared with other industrial sectors, such as agri-business, pharmaceuticals or food & beverages. Wherever Cropwatch has lectured, everybody has strongly agreed with the word 'disproportionate'. And, as we have previously argued, we can point to tens of thousands of premature deaths amongst health patients from adverse drug reactions arising from prescribed drugs, but it is hard to find more than a handful of clinically referred cases of, say, acute contact dermatitis amongst the hundreds of millions of fragrance users, let alone a single instance of a death. Safety has become some high altar on which career toxicologists & regulatory officials (read: lawyers) are free to dispatch the products of hapless aroma ingredient producers to the graveyard, often on the flimsiest of toxicological evidence, to the detriment of the industry's standards

and levels of attainable perfumery excellence. Yet, apparently, none of these considerations with respect to perfumery as a damaged heritable art-form seem to count for very much amongst the fragrance industry's bean-counters, living in fear of media exposure and therefore loss of profit arising from the use of a perfumed commodity, which contains some allegedly hazardous material.

Just as the EU Commission's lawyers were persuaded in the 1990's that an allergy epidemic was occurring in Europe, and Danish dermatologists and others were pointing their fingers at fragrance chemicals as a contributory factor, so we were catapulted into the inappropriate and unnecessary regulation of allergens in cosmetics in 2003 (the '26 Allergens Fiasco'). The story now given (e.g by Vey 2010) is that the incidence of allergy is presently estimated as some 9 times lower since then – difficult for me personally to swallow, but on the other hand I could believe that the clinical assessment of suspected allergy has since improved nine-fold – especially as Cropwatch has seen confidential documents from 1998 describing the shortcomings of commercial Fragrance Mix Allergy Kits used by professional dermatologists & clinicians (including the fact that the oakmoss ingredient used for allergy testing was unbelievably not genuine oakmoss!). As you will undoubtedly have gathered, restriction to the unfettered use of perfume ingredients (especially to essential oils) caused by the ill-advised EU Directive 2003/15/EC, which severely limited the concentration of alleged allergens in cosmetic products, is damage we are still trying to undo. In any fair society something would be done, in the light of evidence that many of the alleged allergens listed are so weak or inactive that they do not produce significant levels of adverse reactions, even in patients with dermatological problems (see Schnuch *et al.* 2007). But it seems impossible that the 'expert' advisers concerned (the SCCNFP, now the SCCS) can bring themselves to admit that they have collectively made some serious mistakes.

That 'Not So Sexy' CSC Report...

But now history looks as if it might repeat itself, this time in the US, in yet another wave of chemophobic paranoia over fragrance chemicals. Of course, the fact that many of us might not be in absolute tip-top health has nothing to do with bad diet, over-eating/excessive bodyweight, excessive consumption of alcohol and/or cigarettes, lack of exercise, recreational drug-taking, breathing in diesel-polluted air, consuming food full of pesticide residues or anything remotely similar. No, according to some, it is because, apparently, we are all being poisoned by our fragranced cosmetics. The reality is, of course, that we live in a period where cosmetics are over-safe - as soon as arsenic compounds were removed from face-powder, and musk ambrette from joss-sticks, the chances of rigor mortis setting in some after a squirt of whatever perfume some Z-list celebrity is currently promoting became pretty negligible. If you really want to know what might keep me awake at night, it is certainly not what micro-quantities of polycyclic musks might be accumulating in my body tissues from use of my personal deodorant, or how much methyl eugenol I consumed in my pesto-laden mozzarella sandwiches that day, but how many hot particles I might have stumbled into on my local beach, because the UK nuclear industry has previously

seemed to be unable to keep the all of its americium & plutonium within the plant's secondary containment!

Anyway back to the main story. As I said in my address to the World Perfumery Congress (WPC) 2010 in Cannes – see <http://www.cropwatch.org/Tony%20Burfield%20at%20Cannes%202010.ppt> - the US cosmetics industry's self-regulatory approach and lack of ingredient safety substantiation has not been without its critics, such as the increasingly influential environmental organisational groups of the *Environmental Working Group (EWG)*, *Skin Deep* & *The Campaign for Safe Cosmetics (CSC)*. The CSC's commissioned report "Not So Sexy - The Health Risks of Secret Chemicals in Fragrance" (CSC 2010) produced by Commonwealth, Environmental Working Group, Breast Cancer Fund, Women's Voices for the Earth & Anne Steinemann (University of Washington) amongst others, certainly caused a lot of comment amongst delegates at the WPC 2010. Delegates seemed mainly concerned that the sensationalist presentation style of the report, the unsubstantiated innuendo, the biased and un-representational selection of toxicological evidence, coupled with the evidential lack of rationalised scientific overview, which may lead many less well-informed people to link fragrance chemicals with adverse health effects – an undeserved conclusion considering the lack of direct evidence presented in the report. What Cropwatch found particularly surprising was the idea that the public would fall for the supposedly "secret ingredients" claim – i.e. the non-listing of fragrance ingredients which are not required to be shown on the product labelling under existing legislation, agreed in order to protect the intellectual property rights of the fragrance producer. We are not saying this is non-consequential, but, for example, it has been shown that for those substances currently requiring mandatory labelling in Europe (such as the chemical names of allergens on the labels of UK supermarket cleaning products), there has been almost zero levels of comprehension and near-zero levels of interest from prospective customers. It is also the case that the assertion made in the CSC report that many of the 'secret' fragrance chemicals identified have not undergone safety testing is a completely erroneous statement, considering the number of bodies have been actively involved in this specific endeavour over many years.

Some of the fragrance ingredients identified in the CSC report are anti-oxidants or UV-absorbers, deliberately added to the product to prevent the (unlikely) generation of sensitisers from ingredients such as limonene and linalol - a fact which weakens the CSC argument surrounding sensitisers. The relative stability of linalol and its incorrect designation as a sensitiser is well-known (e.g. by Hostynek & Maibach 2008), but the CSC failed to reveal this balancing fact in their report. Similar arguments apply to substances like *trans*-anethole, previously deleted from a list of active principles of toxicological concern (CEFS 2005). Yet other 'secret' substances identified (*alpha*-pinenes, myrcene, limonene, *gamma*-terpinene, *para*-cymene, terpineol (no isomer identified) and *alpha*-cedrene) are all components of forest air and of natural essential oils. Millions of tons of monoterpenes, including *alpha*-pinene and limonene, are

passed into the atmosphere per annum from biological materials (Schenk 1979, WHO 1998) for example from green leaves & therefore the needles of pine, fir, spruce & cedar trees, to an extent that both latter substances have been identified in human breast milk – but their presence has curiously raised no public outcry (as opposed to the presence of musks). Maubert (2007) notes that the Landes Forest in SW France produces more terpenes per month than Europe's entire consumption of essential oils in a year. So shouldn't the CSC be identifying trees and forests as their imagined toxicological threat?

Other materials qualitatively identified in the report (and please note that no quantitative estimates of ingredients are given throughout the report, so toxicological implications cannot be made) include: anethole (no isomer identified, but presumably *trans*-anethole), benzyl acetate, benzyl salicylate, benzyl benzoate, eugenol, hexyl acetate, linalyl acetate, phenylethyl alcohol (– no isomer identified, do they mean the *alpha*- isomer: styryl alcohol or the *beta*- isomer: 'PEA'?). All of these materials are components of essential oils, absolutes & resinoids, and are present in the natural fragrant emissions of plants and flowers, although it is apparent from the text that the authors may have not collectively realised this fact in all cases. It would be exceedingly unfortunate if this pressure group succeeded in bringing in more restrictive legislation against these ingredients. This is in view of the fact that legislators treat natural and synthetic forms of ingredients equally, and so any such restrictive legislation would have implications for the lifestyles of many of CSC's supporters who may like to regularly use natural materials in their daily lives (essential oils, natural perfumes, aromatherapy products, natural cosmetics, natural soaps etc.). Greenpeace made much the same mistake some years ago in arguing for the REACH legislation to be brought into effect in Europe. Thanks to their support for the legislation, and their failure to help lobby for the exclusion of natural aromatic substances, we now face the disappearance of many familiar aromatic materials, unless the aroma industry can cough-up the truly extortionate toxicological testing fees required for each ingredient.

More surprising is the lack of IT knowledge collectively shown by the CSC report's authors (i.e. how to go about accessing comprehensive toxicological data from the internet or from scientific libraries – the authors seem to have mainly relied on PubMed!), and the low level of analytical competence shown in the analysis of the chosen fragrances, which operates well below industry standard. Employing a couple of teenagers and giving them access to the internet for a few weeks should solve the first problem, and paying a \$100 dollars or so a time to a small perfume company for GC-Mass Spec analyses of the fragrances that they are interested in, should solve the second. At least they should then get detailed & dependable analyses of the fragrances, which clearly they haven't achieved so far (in Cropwatch's opinion) looking at the paucity of the presented results.

In the "what you can do" summary section of a review of the CSC report on the CSC website at <http://safecosmetics.org/article.php?id=644> you are urged to

lobby to “pass laws that shift the entire industry to non-toxic ingredients and safer production.” Since most/practically all natural aromatic ingredients now carry some sort of (so-called) hazard labelling or risk phrasing, this effectively means shifting to the world of “safe” synthetics. Moreover the EU Cosmetics Commission is of the “zero-risk mindset”, dedicated to the establishment of a synthetic world which is safer than nature (see Burfield 2010), so perhaps they would both like to lock themselves permanently away in it? Just leave the real world to us non-paranoid inhabitants please, so we can enjoy all its alarming chemical dangers – alcoholic drinks, herbs & spices, pesto, trees, flowers, and, err... fragrance!

The CSC report has been rebuffed in a statement by John Bailey, Chief Scientist at the Personal Care Products Council (see <http://www.ctfa.org/newsroom/20100512>) and by the Fragrance Manufacturing Association (FMA 2010) and IFRA. But what is really needed, Cropwatch feels, is a line by line dissection of the whole 46-page report, refuting or challenging every erroneous or unproven statement made - otherwise the defence of fragrance chemicals is not adequately proven.

In Conclusion.

Yes, of course it is right that consumer groups ask serious questions of the somewhat secretive fragrance industry. And it is also right that the FMA and the multi-million dollar IFRA organisation should respond with a highly detailed reply to all their points (note: such a detailed reply is presently lacking). Its just a pity that the CSC have blundered in with such an accusatory and unscholarly document which may yet mess it up for all of us – since in spite of its scientific inaccuracy and unsubstantiated innuendo, the report will undoubtedly add more pressure to further regulate an already over-regulated industry.

References.

Burfield T. (2010) – see Slide 14 at <http://www.cropwatch.org/Tony%20Burfield%20at%20Cannes%202010.ppt>

Committee of Experts on Flavouring Substances (Oct 2005) “Active principle (substances of toxicological concern) in Natural Sources of Flavouring”.

CSC (2010) – see <http://safecosmetics.org/article.php?id=644>

FMA (2010) “U.S. Fragrance Association Finds New Cosmetics Report Misleading – Fragrance Safety Is No Secret” May 13th 2010 http://fmafragrance.org/sub_pages/CSC_release2.pdf

Hostynek J.J, & Maibach H. (2008) “Allergic Contact Dermatitis to Linalool” *Perfumer & Flavourist* **33**(5), 52-56.

Maubert C. (2007) “The Naturals Paradox” World Perfumery Congress 2007 *Booklet presented by Perfumer & Flavourist 2007.*

Schnuch A., Uter W., Geier J., Lessmann H., Frosch P.J. (2007) "Sensitization to 26 fragrances to be labelled according to current European regulation. Results of the IVDK and review of the literature." *Contact Dermatitis* **57**(1),1-10.

Shenck G.O. (1979) *Perf Kosm* **60**, 397.

Vey M. (2010) - remarks made during the address to the *Safety Symposium, British Society of Perfumers, Cambridge Belfrey Hotel, Mar 2010.*

WHO (1998) *Concise International Chemical Assessment Document No 5. Limonene. International Programme on Chemical Safety.*

§3. Rosewood & Guaiacwood oils Controlled Under CITES Appendix II.

[Article slightly modified & updated from a first appearance on *Aromaconnection*, March 29th 2010].

The Environment News Service reported on 19th March 2010, that two South American trees, over-exploited by essential oil traders for the perfumery & cosmetics market, will be listed under Appendix II, the 15th Conference of the Parties (CoP15) Meeting of the Convention in International Trade (CITES) in Doha, Qatar has decided. Trade controls (international commercial trading strictly by CITES export or re-export permit only) were stated to apply within 90 days for *Aniba rosaedora* (Brazilian rosewood) proposed for listing by Brazil, which would apply to logs, sawn wood, veneer sheets, plywood, and the essential oil, but excluding finished products packaged and ready for retail trade, and for *Bulnesia sarmientoi* (hollywood) from the Gran Chaco region of Central America (proposed for listing by Argentina). *Bulnesia sarmientoi* is the species from which guaiacwood oil, acetylated guaiacwood oil and guaiyl acetate are produced, and the Appendix II listing would apply to logs, sawn wood, veneer sheets, plywood, powder, and 'extracts', but excluding finished products packaged and ready for retail trade. The CITES website posting at <http://www.cites.org/eng/notif/2010/E007A.pdf> now sets out the revised Appendix I,II and III species listings post the CoP 15 Meeting, and indicates that trade controls for these ingredients will enter force on June 23rd 2010. The US Fish & Wildlife Service has set out information for (US) re-exporters of *Aniba rosaedora* and *Bulnesia sarmientoi* material and provides a contact: jolm.veremis@aphis.usda.gov. In the EU, the annexes to Council Regulation EC 338/97 re: Protection of species of wild fauna and flora by regulating trade therein, are expected to be modified accordingly.

Cropwatch has long drawn attention to the decline in the ecological status of rosewood trees in Brazil (see rosewood monographs in the *Cropwatch Files* section of the website), and many essential oil users, interested in the sustainability of ingredient use, have subsequently volunteered to stop purchasing the essential oil. Some of Cropwatch's information is mentioned in the IUCN/Traffic Analysis of the CoP proposals (IUCN/Traffic 2010). Unfortunately there is always the unethical element of the trade which will carry on using unsustainable species up until the point at which it is actually illegal to

do so, and possibly even after that. Cropwatch has previously named and shamed some major rosewood oil users, but they have seemed too set in their ways to take any notice of environmental arguments.

The status of holywood (guaiacwood) trees in the Gran Chaco National Park which stretches across W. Paraguay, N. & N.E. Argentina & S.E. Bolivia was recently updated by Cropwatch in its *Updated List of Threatened Aromatic Plants Used in the Aroma & Cosmetic Industries v1.19* (N.B. the latest version is v1.21 - see *Cropwatch Files*). Guaiacwood essential oil is actually a brownish paste melting at 45°C, and up to now its acetylated derivatives have occupied an important place in the perfumer's palette.

Enforcement Problems.

But will these listings really make any real difference? A CITES Appendix I listing would have been far more effective, especially in the case of the rosewood tree, who's survival has been much more in the hands of the lawless loggers than anything else. Rosewood oil from unlicensed stills deep in the forest continues to find its way into the essential oils market, although some imported batches show unusual compositions suggesting adulteration (e.g. the presence of considerable concentrations of *alpha*-, *beta*-, *gamma*- & *delta*- terpineols, or of *alpha*- & *beta*-terpinyl acetates) prompting queries about the species it was sourced from (for an *Aniba* species review, see Cropwatch's *Rosewood Biblio* in the *Cropwatch Files*), or if it is 100% derived from the named botanical species as stated. Some suppliers are indeed claiming that the rosewood oil they supply is "from a different species" than that stipulated by CITES. Other exporters have been claiming that they can supply, apparently, drums labelled *Fragrance X* consisting of 97% rosewood oil and 3% vegetable oil directly from Manaus, giving some weight to the EU official objection at CITES CoP 15, that putting rosewood oil & guaiacwood extracts into Appendix II "couldn't be policed".

As for guaiacwood, there is some confusion over the legal definition of the term "extracts". Will guaiacwood oil from Paraguay continue to be legally available with the correct documentation & permits, or is it just Argentinean origins which will become unavailable? Time will tell, but these CITES listings are, at least, a step in the right direction.

Reference:

IUCN/Traffic (2010): IUCN/TRAFFIC Analyses of the Proposals to Amend the CITES Appendices at the 15th Meeting of the Conference of the Parties Doha, Qatar 13–25 March 2010

§4. Santolina Oil: banned IFRA, for no particular reason?

[Slightly modified from a first appearance on *Aromaconnection*, March 27th 2010].

Matthias Vey had the decency to admit, at the BSP Safety Symposium on March 11th at Cambridge UK, that the proposed banning of melissa oil in IFRA's 44th Amendment was a mistake, albeit one made by his predecessor. Cropwatch

considers that the fact that the mistaken ban was queried by humble perfumery technicians throughout the trade, but had apparently escaped the attention of RIFM's Expert Panel, is an internal matter for IFRA to reflect on. Apologies from Vey too over the dithering with regard to the restriction, or should we say the suspended restriction, of vanillin in IFRA's 44th Amendment (previously queried by Cropwatch in Cropwatch Newsletter 15), and Vey explained part of the story behind the restriction of oakmoss qualities (first published by Cropwatch in 2008). If, from all this, you get the impression that perfume ingredient regulation is more a matter of politics than of robust scientific evidence, then you would be entirely correct, in my view.

IFRA have also previously made clear their intentions to ban other essential oils. Santolina oil CAS 84961-58-0 (the botanical species name not identified in the IFRA Standard) is one of these and was banned on undisclosed grounds following an initial review under IFRA's 40th Amendment (2006). A survey of the IFRA membership had indicated non-support for its continued use, but as you will all be aware, IFRA are very fond of saying they represent the industry, when they only represent a part of it, especially that part represented by the large aroma corporates. The fact that santolina oil has a moderate level of use in the trade (300 t/y in 1996) and finds applications in cosmetics because of its beneficial properties, appear to have been escaped the IFRA high-command.

Cropwatch has established a detailed monograph on santolina essential oil from *Santolina chamaecyparissus* L. (Cotton lavender) at http://www.cropwatch.org/Santolina_chamaecyparissus_L.pdf which contains references to as much published material as we can currently find. It appears that the composition of Spanish santolina oils from *Santolina chamaecyparissus* L. vary considerably according to the area in which they are grown, and which subspecies is used to prepare the essential oil (Pérez-Alonso & Velasco-Negueruela 1992). Published pharmacological investigations of *S. chamaecyparissus* extracts, and information on santolina oil so far declared in the IFRA-IOFI labelling manual 2009 (botanical information not indicated) do not indicate any grounds whatsoever for a complete ban of the ingredient for perfumery use.

This makes the reasons behind the IFRA ban of santolina oil all the more obscure. Information displayed on the IFRA site indicates that the RIFM Expert Panel gave three possible reasons, but, in true Kafka-esque fashion, we are not allowed to know which of them applies:

1. The presence of structural alerts as defined in the Human Health Criteria Document (Ford *et al.*, 2000), and/or
- 2) Adverse data on the material itself and/or
- 3) Adverse data for a structurally related material

So are we in another melissa oil situation, where the reason for the IFRA ban suddenly evaporates when the submitted evidence is revealed by a third party? We need to know because materials contained in santolina oil may occur in other

natural aromatic products. And we need to know because banning an ingredient for undisclosed reasons smacks of toxicological imperialism.

References:

Ford *et al.* (2000) "Human Health Criteria Document." *Reg. Tox & Pharm.* **31**, 166-181, 2000.

Pérez-Alonso & Velasco-Negueruela (1992) "Essential oil components of *Santolina chamaecyparissus* L." *Flav. & Frag. J.* **7**, 37-42.