

Oils and Fats News

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A happy and prosperous new year to everyone.

The specialist group is not planning any events in New Zealand this year but people should be aware of a lipid meeting coming up in Cairns in July.

The International Society for Plant Lipids (ISPL) is holding a meeting then and AAOCS will also run a concurrent programme.

Further to the proposal to hold the AAOCS section meeting in Cairns, ISPL has now developed up a program of sessions that will be held on Monday 12 & Tuesday 13 July as a mini-symposium on "Plant lipid biomaterials for the renewable resource economy". The sessions are as follows:-

- Plant lipid feedstocks for industrial chemistry – Session Chair: John Dyer (USDA Arid Land Agricultural Research Centre)
- Plant oil bio lubricants – Session Chair: Sten Szymne (Swedish University of Agricultural Sciences)
- Plant and algal oil biofuels – Session Chair: Sue Blackburn (CSIRO Marine and Atmospheric Research)
- Increasing plant oil productivity – Session Chair: John Ohlrogge (Michigan State University)
- Metabolic engineering of fatty acid and oil biosynthetic pathways – Session Chair: Surinder Singh (CSIRO Plant Industry)
- Agro-industrial challenges for genetically-modified industrial plant oils – Session Chair: John Oakeshott (CSIRO Crop Biofactories Initiative)

Kao halts sales of DAG oil (from AOCS)

Japan's Kao Corp. has temporarily suspended shipments of its portfolio of Econa brand products, including its diacylglycerol (DAG) cooking oil, salad dressings, and mayonnaise, because of the presence of glycidol fatty acid esters in them. The company said in a statement that the suspension will continue "until the amounts of . . . [glycidol] esters contained in Econa and related products can be lowered to levels found in common cooking oils."

BfR, the German risk assessment agency, recommended in March 2009 that infant formula manufacturers reduce the level of glycidol fatty acid esters in infant formula. This recommendation was made because animal studies suggest free (unbound) glycidol is a carcinogen.

BfR noted that there is no toxicological evidence suggesting that bound (esterified) glycidol is a health risk. Nonetheless, it made a worst-case risk assessment assuming that all glycidol esters are metabolized into free glycidol. The German agency also noted that current analytical methods do not permit the detection of glycidol esters in vegetable oil. Despite these facts, the BfR action apparently prompted Japan's Food Safety Commission to take action regarding glycidol esters in August 2009.

Glycidol esters are present in virtually all processed vegetable oils and are believed to be formed during deodorization. The vegetable oil industry is working on mitigation; most food safety bodies such as the US Food and Drug Administration and the European Food Safety Authority have called for more research before setting any regulatory limits on glycidol esters in food products.

Inform magazine has contacted Kao Corp. and the Japanese Food Safety Commission for more information about the company's action; a full report will appear in the November issue of the magazine. For more information on chloroesters (the chemical family to which glycidol belongs), see the [April 2009](#) issue of inform. http://www.kao.com/jp/en/corp_news/2009/20090916_002.html

MPOB STATEMENT ON 3-MCPD ESTERS

The Malaysian Palm Oil Board (MPOB) has noted the food safety issues on 3-MCPD ester and glycidol fatty acid esters in foods and refined edible oils.

The 3-MCPD ester has been reported to be found in all refined vegetable oils and fats. However, the method of analysis for 3-MCPD ester in vegetable oil is still being evaluated and has yet to be validated. MPOB has been actively developing methods using different derivitizing agents. Meanwhile, an evaluation carried out so far by a reputed European laboratory on behalf of MPOB has found that palm oil does not have the highest level of 3-MCPD esters, which contradicts the dearth of results reported by others. The reasons for the differences could be manifold, however, the difference in the method of analysis and the sampling of the oils analysed are the main issues.

The health risk posed by MCPD esters is also ambiguous. It should also be noted that there is currently, no toxicological data on 3-MCPD ester and the BfR assessment has assumed that toxicologically relevant 3-MCPD is released from 3-MCPD ester during digestion. Tolerable daily intake (TDI) for 3-MCPD has been established at 2 µg/kg body weight and the same value was used for the assessment of 3-MCPD esters. Another assumption is that the metabolism of 3-MCPD ester is similar to that of dietary triacylglycerols (TAGs), forwarding the hypothesis that ingestion of (sn1)-monoester would result in the release of free 3-MCPD, while (sn2)-monoesters would be absorbed as such. MPOB will be collaborating with reputable research institute in determining the metabolism and toxicology of 3-MCPD ester in an animal model.

Regarding the issue on glycidol fatty acid esters, there was also an assumption that this

compound is formed as an interim product of 3-MCPD esters during refining. However, there are no methods available to quantify glycidol or its esters to support this theory. Thus, standardized and agreed analytical methods are necessary. Toxicological studies were also not available to study the fate of glycidol esters in human digestive tract and to provide sufficient evidence for carcinogenicity studies.

Trade Standards for Olive oils and olive pomace oils in New Zealand and Australia

Support is sought from the Australian Olive Oil association for this trade standard by working with Standards Australia. The Oils and Fats group has already sent a letter of support. The Australian olive industry has worked hard over recent years to maintain a focus on quality and to try to build strong connections with the olive oil supply chain. This has been during a period that has seen many challenges including water shortages, adverse weather events and aggressive competition from subsidized and often inferior quality products from the Mediterranean here and overseas.

On behalf of the industry the AOA has been working to address market access factors for genuine olive oil products in Australia and overseas. A key outcome of these activities is the proposed development of a Trade Standard for Olive Oils and Pomace Oils in Australia that has been strongly recommended by a number of public and private stakeholders.

We are now working with Standards Australia to bring together the relevant stakeholders to develop this Trade Standard for Olive Oils and Pomace Oils in Australia and, possibly, New Zealand. It is our intention that this Australian (and hopefully New Zealand) Standard for olive oil will be fair, based on good science, have support from the supply chain and importantly simplify the situation for consumers so that they can make more informed choices. We believe that this will be a major step forward and one that will make our marketplace a more level playing field for all. In addition these moves are being monitored closely by our industry colleagues in other countries including the USA, Chile, Argentina, South Africa and, of course, in countries around the Mediterranean.

OLEOCANTHAL may help prevent and treat Alzheimer's disease

Oleocanthal, a naturally-occurring compound found in extra-virgin olive oil, alters the structure of neurotoxic proteins believed to contribute to the debilitating effects of Alzheimer's disease. This structural change impedes the proteins' ability to damage brain nerve cells.

“The findings may help identify effective preventative measures and lead to improved therapeutics in the fight against Alzheimer's disease,” said Paul A.S. Breslin, PhD, a sensory psychobiologist at the Monell Centre in the USA.

Known as ADDLs, these highly toxic proteins bind within the neural synapses of the brains of Alzheimer's patients and are believed to directly disrupt nerve cell function, eventually leading to memory loss, cell death, and global disruption of brain function. Synapses are specialized junctions that allow one nerve cell to send information another.

“Binding of ADDLs to nerve cell synapses is thought to be a crucial first step in the initiation of Alzheimer's disease. Oleocanthal alters ADDL structure in a way that deters their binding to synapses,” said William L. Klein, PhD, who co-lead the research with Breslin. “Translational studies are needed to link these laboratory findings to clinical interventions.”

Klein is Professor of Neurobiology & Physiology, and a member of the Cognitive Neurology and Alzheimer's disease Centre, at Northwestern University. He and his colleagues identified ADDLs in 1998, leading to a major shift in thinking about the causes, progression and treatment of Alzheimer's disease. Also known as beta-amyloid oligomers, ADDLs are structurally different from the amyloid plaques that accumulate in brains of Alzheimer's patients.

Reporting on a series of in vitro studies, the team of Monell and Northwestern researchers found that incubation with oleocanthal changed the structure of ADDLs by increasing the protein's size.

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Extra Virgin Coconut oil

This author recently visited Dr. Dan Etherington in Canberra, Australia .Dan is the inventor of a cold pressing technique for obtaining high quality coconut oil from coconuts. On islands throughout the Pacific and elsewhere, there are few opportunities for communities to make money to pay for food, medicine, and education, let alone such things as roads and electricity. Coconuts are the primary resource in these areas, but until recently the only market for coconut was as copra (smoke-dried coconut) sold for the production of refined coconut oil. Revenue from copra, however, has been so small that these communities have struggled with poverty for decades. In order to help relieve poverty, efforts have been made to establish other types of industries in these communities that would be self-sustaining. In recent years the demand for virgin coconut oil and other coconut products has increased dramatically. This has provided a means by which many small communities throughout the tropical world could make a living. Many have

turned to the pioneering work of an Australian, Dr Dan Etherington, and his Direct Micro Expelling (DME) process of producing virgin coconut oil. This process is relatively inexpensive and allows small communities to..... produce their own virgin coconut oil for export to bring in revenue, for their own use in cooking and body care, and for fuel to power generators and vehicles. Each community independently owns and operates its own business. Through the production of virgin coconut oil many communities around the world have been able to pull themselves out of poverty. Dan and his company, Kokonut Pacific, have provided the equipment and training for many of these small scale operations. Dr. Dan Etherington recently received the order of Australia for his pioneering work.

See kokonutpacific.com.au