Oxidized fish oils on market may harm consumer, warns researcher

By Dominique Patton

20/10/2005 - **Better methods for stabilizing fish oils are needed to protect consumers from the toxic products produced when they go off, says a team of New Zealand researchers.**

Sales of fish oil supplements are booming in many markets as consumers become aware of their benefits for the heart, joint health and mental function. However, fish oil is easily oxidised and a team at New Zealand's Crop & Food Research institute believe that industry's failure to control this process could be putting consumers at risk.

Dr Carlene McLean, the institute's oils expert, says that she has tested many fish oil samples from the UK and Asian markets and found them to contain oxidation byproducts, despite being within the sell-by date.

These products could have the opposite effect that a consumer is hoping for when he consumes the product.

"Oxidised oils and fats of other types have been shown to increase the risk of atherosclerosis and thrombosis in a small number of human trials. These effects have been seen with relatively low levels of oxidised product - similar to a regular dose of fish oil capsules," said scientist Rufus Turner.

Fish oil at a late stage of oxidization will smell rancid but the initial breakdown products, which are still harmful, have little aroma, according to the researcher.

"It is very worrying because nobody has really put this together yet they are doing large trials using high dose supplements," added Dr Carlene McLean, the institute's oils expert.

"But they don't consider the level of oxidation in the supplements."

Oxidised oil could explain some of the variable results in these trials, she told NutraIngredients.com.

McLean has co-authored a review submitted for publication to *Nutrition Research Reviews* that compiles data on the toxic oxidation products borne out of fish oils.

Fish oil is a highly unstable product and as soon as it is extracted from fish, and exposed to oxygen, metals, light and heat, it begins to oxidise.

Most fish oil producers remove many of the oxidation products during the purifying process but this is not enough, says McLean.

They may also add vitamin E, an antioxidant, to prevent further oxidation but many producers use the more readily available form, alpha-tocopherol, which is not such a potent antioxidant as another more expensive form, gamma-tocopherol.

"Many fish oil supplements have a best-before date of three to four years. But fish oil starts to go off within days," McLean said.

The products are often encapsulated in a gelatine shell making it difficult for the consumer to notice, she added.

Claire Packer, marketing director at fish oil supplier Croda, said she was surprised by the findings but added that there is a wide range of different types of fish oils on the market.

The New Zealand team is currently investigating whether antioxidant plant extracts could be added to fish oils to make them more stable. Working with the country's leading fish processor, Sea Lord, they are looking at adding antioxidants as soon as the oil is extracted to combat the oxidization even before further processing and purification.

Extracts of kumara, a sweet potato, have shown good results in lab tests, although the researchers still have not identified the active components.

They are currently testing seaweed extracts that compare favourably to the commercial antioxidants ascorbic acid and butylated hydroxytoluene (BHT). Long-term storage trials will be required to test the efficacy of the antioxidants.