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## NoveLin leads in health content

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THE Malaysian palm oil industry may be in for a boost now that NoveLin cooking oil is close to its commercialisation phase.

While excitement over NoveLin cooking oil was initially due to its ability to stay liquid in low temperatures, recent studies by the Malaysian Palm Oil Board (MPOB) and Dongguk University of South Korea are starting to show that its health benefits could be the main draw for this oil.

MPOB and Dongguk University have now highlighted that NoveLin has a high content of essential fatty acids, high tocopherol and tocotrienols levels (both are members of the Vitamin E family) and a high iodine content among other things.

The presence of Vitamin E as an antioxidant combined with NoveLin's ability to remain in liquid form provides protection from oxidative deterioration, hence also reducing carcinogenic tendencies.



Green Ocean's cooking oil factory in Klang.

Little known [Green Ocean Corp Bhd](#) is currently the technology licensee for NoveLin oil and has a factory in Klang producing 10,000 tonnes of NoveLin oil per year.

In 2009, Green Ocean's subsidiary [Ace Edible Oil Industries Sdn Bhd](#) entered a technology transfer and licensing agreement with the MPOB for the production of NoveLin edible oil.

NoveLin edible oil is a registered trademark technology by MPOB that was developed by its researcher [Dr Siew Wai Lin](#).

For the uninitiated, normal palm oil crystallises under temperatures close to 15°C, thus limiting its ability to be exported overseas, particularly in cold countries.

To compensate for this shortcoming, palm oil is presently mixed with other softer oils when exported, hence also diluting the concentration of palm oil. It is also this stumbling block that has limited the marketability of palm oil overseas.



‘A balanced fatty acid ratio is extremely important because most diets today are high on the bad fats,’ says Lee.

This makes it more difficult for palm oil to compete seriously with other more popular edible oils such as soya bean and rapeseed oil particularly in Europe and the colder countries.

NoveLin cooking oil makes a difference because it quite literally does not freeze under icy temperatures.

‘We have been researching and developing NoveLin over the last two years before finally getting the processes right. We like NoveLin oil because of its many nutritional and health benefits,’ says Green Ocean president and [managing director Mckin Lee Byoung In](#).

Lee is a veteran in the Malaysian palm oil industry, having been in the sector over the last decade. In 2006, using MPOB's technology to produce biodiesel, Lee was instrumental in commercialising the production of biodiesel in South Korea

Lee says that the imbalance in diets in recent years is due to overconsumption of animal fats.

Health researchers from MPOB and Dongguk University like NoveLin predominantly for its balanced fatty acid ratio and high polyunsaturates content.

‘A balanced fatty acid ratio is extremely important because most diets today are high on the bad fats, but low on the good fats. Not all fats are bad. We must consume the essential fatty acids as some of the fats cannot be produced naturally in our body,’ says Lee.

In its research report on NoveLin oil, MPOB says NoveLin is considered a premium oil because it is able to achieve the balanced fatty acid ratio with cold stability of 1:1:1 (for saturates: monounsaturates: polyunsaturates).

‘This is important, because today's modern diet sees unbalanced fat intakes where the ratio is high for saturates and very low for monounsaturates. Today, most of the fats consumed are unhealthy because the ratio of the saturates are very high compared to the monounsaturates and polyunsaturates,’ says MPOB.

The formula of 1:1:1 is also a recommendation of the American Heart Association (AHA) and World Health Organisation (WHO), which says that this ratio of fat intake is critical at any level of fat intake.



NoveLin is different from normal palm oil-based cooking oil □ it does not crystallise under ice cool temperatures.

In the case of NoveLin, it also provides a unique combination of omega-3 fatty acids, with a ratio of n-6 (linolenic acid) and n-3 (alpha linolenic acid) of within 10:1.

Overall, the ratio of n-6:n-3 of polyunsaturates in modern diets are as high as 20:25:1, instead of a lower ratio. The n-6:n-3 ratio in the brain is 1:1 and in fat tissues 5:1,

The World Health Organisation guidelines for a healthy diet recommend a ratio of not more than 10:1.

MPOB says NoveLin oil has about 2□ to 4□ Omega-3 fatty acids which provides a n-6:n-3 ratio of about 5:1.

Omega-3 fatty acids are considered essential fatty acids which are required for the body to work normally. As it is not made in the body, it needs to come from one's diet.

There have been lots of research showing strong evidence that the Omega-3 can boost heart health, lower triglycerides levels and help with rheumatoid arthritis.

Novelin's high tocopherol and tocotrienols level means that there is a natural antioxidant protecting the oil from oxidative deterioration.

Thus, Dongguk University says that NoveLin oil is suitable for frying, general cooking purposes and salad dressings.

□This ensures the stability of the oil as compared with unsaturated oils such as soybean or corn oil. It is comparable to olive oil, especially to oils with low saturate levels,□says MPOB.

MPOB has exclusively given the NoveLin licence to Green Ocean for the commercialisation of the oil since 2009. Green Ocean will pay some royalties to MPOB for the sale of NoveLin oil throughout this period.