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## **Red Palm Oil: The premium cooking oil with pro-Vitamin A**

### **What are the health compounds in palm oil?**

Palm oil is bestowed with a bouquet of minor components that render significant oxidative stability or shelf-life to palm oil and provide health benefits for consumers. They are known as phytonutrients, due to their nutritional values.

The major phytonutrients in palm oil include carotenes, vitamin E (tocopherols and tocotrienols), sterols, squalene, coenzyme Q10 (also known as ubiquinone) and phospholipids (commonly known as lecithin). These are fat-soluble phytonutrients. Palm oil is unique as it is the only vegetable oil that contains a combination of natural carotenes (pro-vitamin A), tocotrienols and coenzyme Q10. These are powerful antioxidants which help protect the body against harmful effects of free radicals that may pose potential danger in causing degenerative diseases, for example atherosclerosis, cancer, cataract, and premature ageing, to name a few.

Alpha- and Beta-carotenes are pro-vitamin A carotenoids that can be converted into vitamin A retinol. In fact, crude palm oil is one of the richest natural plant sources of carotenes. It has 15 times more pro-vitamin A than carrots and 300 times more than tomatoes. The presence of carotenes imparts the characteristic orange red colour to crude palm oil.

### **What are the differences between red palm oil and the usual palm oil used for cooking?**

The usual golden coloured palm oil is refined, bleached and deodorised to suit consumer preference. We call this RBD palm oil. The refining process causes the destruction of all carotenes present in the crude palm oil. As a result, the final product RBD palm oil, is light golden in colour and devoid of carotenes.

Red palm oil has all the components of the golden palm oil but in addition retains most of the carotenes (>80%) as well as tocotrienols (>80%) originally present in the crude palm oil. The presence of carotenes, as well as other quality parameters of red palm oil makes this oil stable when kept at room temperatures (18-30°C) over a normal shelf-life period of 18 months.

### **How is red palm oil processed?**

This process involves two stages i.e. pre-treatment of the crude palm oil followed by deodorisation and deacidification by molecular distillation. MPOB has a patent for this.

A commercial plant was built in Johor and the product with the Trade name CAROTINO is now being marketed in more than 30 countries worldwide. Today, there are other brands of red palm oil available in the market produced using different technologies.

### **Are the benefits of red palm oil tested?**

MPOB tested the efficacy of red palm oil supplementation in collaboration with Lanzhou University and the Chinese Nutrition Society between 2014-2016. A vitamin A intervention Program was conducted in Gansu, China. Biscuits made from CAROTINO Red Palm Oil were given every day to schoolchildren who were suffering from malnutrition, especially vitamin A deficiency. This study involved 2,000 elementary school students (7-12 years old). At the end of the study the results showed that the biscuits significantly reduced the incidence of vitamin A deficiency from 21.6 % to 6.1%. This landmark study has been well documented by the Chinese scientists. The usefulness of red palm oil is recognized and all barriers to the import of the oil has been removed, e.g. red colored oil > 7R or greater is allowed.

### **How can red palm oil be used in cooking?**

Red palm oil is used as salad oil and salad dressing; in bakery products such as cake and biscuits; in curries, satay sauce, sambals as well as any stir-fried dishes. It can also be used for margarine and butter oil substitute formulations to give the required colour for the final products and the desired level of pro-vitamin A. When used judiciously it has been used in deep frying of chips to impart a pleasing flavour and colour. Thus, it has been widely used in consumer and industrial products worldwide. Sensory-wise, red palm oil is as good as the golden coloured palm oil. The red colour imparted to cooked food is attractive. The colour also shows phytonutrients like carotenes and tocotrienols are present in the food cooked with red palm oil.

### **What are the other carotene products from palm oil?**

Palm carotene concentrate can be used as a natural food colorant or encapsulated in the form of soft capsules for use as a nutrition supplement. The Food and Agricultural Organisation (FAO) has accepted and included palm oil carotenes as a permissible food colourant. Palm carotenes can be used in dietary supplements, nutraceuticals, pharmaceuticals, cosmeceuticals, functional food and beverages, and feed additives.

The global carotene market is projected to reach USD2,070 million by 2023, registering an annual growth of 4% from 2018 to 2023. Palm carotenes can contribute to this market.

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