

Use and Marketing of Palm Oil in the Mediterranean Countries – Single vs Blended Oils

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The term 'Mediterranean Region' is used to encompass all the countries with a shore line on the Mediterranean sea. The region comprising Southern Europe, North Africa and part of West Asia is very diverse in climate and eating habits. The region can be classified as a liquid oil market and some countries are already experiencing a deficit in edible oil supply. Palm oil and its products possess various positive qualities and could be imported to meet the region's deficit in edible oil supply that may aggravate in the near future due to the natural increase in population and in per capita consumption of oils and fats. How to utilize the imported palm oil, and especially palm olein, advantageously and efficiently for the optimal benefit of the consumers merits discussion.

From the results of numerous nutritional studies (1991) it is evident that palm oil is a wholesome nutritious edible oil readily acceptable by the world's population. Palm oil meets all the normal nutritional requirements expected of an edible oil including meeting the essential fatty acid requirements in one's diet. Moreover its fatty acid composition is ideally balanced to benefit the blood lipids and the lipoproteins. Last but not least, its minor components especially the tocotrienols and carotenoids have important and beneficial physiological effects for optimum health. From the nutritional point of view there is no reason why palm oil cannot be used on its own. However, in the liquid oil sector, palm oil suffers from the fact that it is semi-solid in temperate climates. Even double-fractionated palm olein has a tendency to cloud at temperatures below 5°C. This property hinders the full acceptance of palm olein as a cooking oil by housewives. Studies are in progress at PORIM to solve this 'clouding' problem of palm olein in order to enhance its marketability as a liquid cooking oil in temperate countries.

Blending with other vegetable oils has long been recognized as a practical measure to overcome the 'clouding' of palm olein. Indeed, studies by Japanese investigators have shown that some blends of soya bean oil and palm olein remain clear even in winter. Also PORIM's work with scientists of the Korean Institute of Science and Technology has resulted in the formulation of 70:30 blend of rice bran

oil and palm olein, in which the two oils mutually correct the deficiencies of each other. Thus palm olein confers greater oxidative stability to the rice bran oil in the blend, while rice bran oil prevents 'clouding' of its blending partner. Moreover, this 70:30 blend has 1.1:1.6:1.0 ratios of saturated, monounsaturated and polyunsaturated fatty acids, which are reasonably close to the 1:1:1 ratios recommended by the American Heart Association and other health bodies. As desired for the maintenance of good dietary standards, the South Korean government has approved the blending of oils and the marketing of blended oil products in their country.

The rice bran oil and palm olein blend mentioned above clearly illustrates the advantages of blending palm oil with indigenous oils: the blend is of superior nutritional quality and with better physico-chemical properties. Furthermore, if the indigenous oil is more expensive than palm oil, the blend will have a price advantage and will be more affordable to the bulk of the population. It is worthwhile for the relevant authorities to give serious consideration to utilizing palm oil in blends with other vegetable oils which may be produced in the country, such as soya bean, sunflowerseed and cottonseed oil, and to use such blends in the manufacture of various food products, *e.g.* cooking and salad oils, margarine, shortenings and vanaspati. As stated above, palm olein has been blended with soya bean and rice bran oil to give cooking oils which are now in use in South Korea and Japan. More recently, Pakistan has been test marketing a cooking oil made by blending palm oil with cottonseed oil. In India, the National Dairy Development Board has launched a 2:1 blend of palm olein and groundnut oil marketed under the brand name 'Lok Dhara'. The blend is expected to cost 20%-25% less than groundnut oil by itself. In Algeria, the ENCG corporation has put on the market a 3:7 blend of palm olein and rapeseed oil as cooking oil under the brand name 'NAKHEELIA'.

In Italy, two prominent companies, Unilever and Salindo have recently introduced premium priced frying oils for domestic use which declare on the labels "blends of sunflower oil, palm olein and groundnut oil".

In Greece, Unilever has launched a similar blend under the brand name FRIOL and we are informed that other manufacturers are planning to produce similar products.

EXAMPLES OF GOVERNMENT REGULATIONS ON THE USE OF PALM OIL/OLEIN AS EDIBLE OILS AND FATS

Since the introduction of palm oil into the food system of a country requires prior evaluation of various aspects (health, legislation, etc) a summary of regulations in various countries outside the Mediterranean region as well as Codex Alimentarius is given below as background information.

U.S.A.

Title 21 of Code of Federal Regulations (CFR) gives the requirements for mixtures of edible fats, oils and olive oil. Part 102 of Chapter 1 covers mixtures of edible fats and oils (including palm oils) containing 0% to 100% olive oils (1986).

South Korea

Article No. 22 of Korea Food Hygiene Law states that "Manufacturers of food and food additives which are listed by the Ministry of Health and Social Affairs must obtain permission prior to production, either from the Ministry, or from the Mayor of the appropriate city or from the government of the province."

Korean Food Hygiene Law dictates the specifications and the standards of identity for all foods to be sold in the country. The kind of edible oils and fats that the law applies consist of fifteen types including palm oil, palm olein, palm stearin, palm kernel oil and blended oils.

Japan

The Japanese government specifies the standards of identity of various oils in the Japanese Agricultural Standards (JAS). Oils specified include palm oil, palm olein, palm stearin, palm kernel oil and blended oils. Japan classifies blended oils into three groups, namely, blended oils, purified blended oils and blended salad oils (1986).

Taiwan

Blended vegetable oils are listed in the Chinese National Standard (CNS) whereby palm oil, palm

olein, palm stearin and palm kernel oil are among other oils covered by the standards (1986). Blended oils are classified into three groups similar to the Japanese classification.

Codex Alimentarius

According to Codex Alimentarius, "edible vegetable fats and oils" means foodstuffs composed mainly of glycerides of fatty acids. They may contain small amounts of other lipids such as phosphatides, unsaponifiable constituents and free fatty acids naturally present in fat or oil. They must be obtained only from vegetable sources and include fats and oils that have been subjected to processes of modification including hydrogenation (Codex Stand 181).

STATUS AND REGULATIONS ON BLENDED OILS IN MEDITERRANEAN COUNTRIES

Portugal

Status

Portugal is one of the newer members of EEC and has a population of 9.9 million people. The country is only 5% self-sufficient in oilseeds and 50% in oil meals but 87% in oils and fats. The major oils produced, consumed and exported are soya and sunflower oils. Palm oil has the biggest share of the imported oils.

In recent years palm oil imports have been increasing rapidly and in 1992 reached 3.7 kg per ca., the highest in Southern Europe, with palm oil of Malaysian origin being nearly 90% and rising.

Law and legislation

Late in 1988, Portugal introduced a new decree law 343/88 which regulates oil offered for retail sale. This law requires, among other things, that the description "oil" be reserved for those liquid at 20°C, and those offered for frying must have maximum 2% linolenic acid (C18:3). Those not liquid at 20°C must be described as "fats". This law does not apply to palm oil or olein and a special law for these two palm products is pending (Pantzaris, 1992).

Spain

Status

Spain is an European country in the Mediterranean region and a recent member of EEC with a

population of 39.2 million (1993). Spain is about 50% self-sufficient in oilseeds and oil meals but a little more than 100% self-sufficient in oils and fats, although the trend is falling. Palm olein from Malaysia is the second largest imported oil.

Legislation

All quotas on oils and fats were abolished in 1991 and import duties are well on the way to full harmonization with EEC. Importation of palm olein no longer requires a special licence, which had been used previously to protect the domestic olive oil industry (Pantzaris, 1991 and 1992)

Egypt

Egypt is a North African country bordering on the Mediterranean and the population stood at 56 million in 1993. Per capita consumption of oils and fats is about 19 kg.

Legislation

In 1992, the Egyptian standards organization set standards for blends of vegetable oils including palm olein and regulations for blended cooking/frying oils have now come into force. This development opened the way for the local edible oil industry to use palm olein in winter months in mixtures with other liquid oils (Jaais, 1992)

Algeria

Status

Algeria is also a North African country located in the Mediterranean area and the population has now reached 27.1 million (1993). Algeria is mainly a liquid oil market with 95% liquid oil and 5% solid.

Legislation

ENCG is the central agency importing oils/fats for the Algerian market. In 1992, Algeria allowed blending of palm olein for use as a liquid cooking oil (Kheiri, 1992). Palm olein-based cooking oil is sold under the brand name 'NAKHEELIA' and is packed in 1, 2.5 and 5 litres plastic bottles. Two types of cooking oils are produced:

- a. Multiple Usage Oil – 30% palm olein blended with 70% colza oil.

- b. Frying Oil – 50% palm olein blended with 50% colza oil.

Turkey

Status

Turkey does not, as yet, have any standards for edible palm oil and its fractions. The reasons given for not having such standard are:

- a) Palm oil and its fractions are not marketed as such directly to the consumers in Turkey but are mainly used as raw materials for making fat based consumer products such as margarines, vegetable ghee, etc.
- b) Whenever the need arises Turkey follows the International Standard mainly Codex Alimentarius, for palm products.

Legislation

Although at present, there is no Turkish standard for liquid cooking oils based on blends of vegetable oils, a local manufacturer may produce and market such products prior approval from the Ministry of Health. Food products having no local standards have to be approved by the Ministry of Health before they can be marketed in the country (Iftikhar, 1993).

Tunisia

Status

Tunisian refiners import between 4 000 to 5 000 tonnes of palm oil products every year for margarines, shortenings and other industrial fats. Since Tunisia is a liquid oil market, palm olein has a great potential for a breakthrough. However, on its own palm olein does not likely to penetrate this market and blending is required to produce a liquid cooking oil for the retail sector. Currently, blending is allowed but the responsibility to import and market liquid vegetable oils has been transferred from *L'offie Nationale D'huiles* (ONH), Ministry of National Economy to the private sector. However the private sector is not given any subsidy to market liquid cooking oils as is given to the public sector and it is therefore not profitable for them to import palm olein for blending. Unless the price differential to the consumer is reduced, palm olein is unlikely to be imported in large quantities by the Tunisian private refiners.

Morocco

Status

Morocco is a 93% liquid oil market and is about 34% self-sufficient in its annual consumption of oils/fats. Palm olein has a good potential to enter the liquid oil market but blending is still not allowed. Once it is permitted, RBD palm olein could be used to produce blended cooking oil for the retail sector. Based on a realistic blending ratio, up to 70 000 tonnes of RBD palm olein could be used in Morocco for making blended liquid cooking oils (1993).

Libya

As is the case of Algeria and Morocco, Libya is a liquid oil market too. Palm olein has a good potential for this market. Legally, blending is not yet permitted but once approved it is estimated that up to 15 000 tonnes of RBD palm olein could be used in the liquid oil sector of Libya (1991).

Jordan

Single RBD palm olein or RBD palm oil is fully acceptable and used in Jordan (1991).

Syria

At present, there is no legislation in Syria to cover the blending of liquid vegetable oils for use as cooking oils. The country is now preparing a standard to cover liquid cooking oils based on blends of vegetable seed oils and palm olein (1991).

Iran

Iran has been importing RBD palm oil to make soap and palm olein to make vegetable ghee and shortening. Current regulations classify RBD palm oil as an inedible product. However, palm olein is conditionally allowed to be used in blends for vegetable ghee production provided the following conditions are met:-

1. Sum of C12:0 to C16:0 acids should not be more than 20%;
2. Iodine value should be minimum 70.

The conditional permission given to blend RBD palm olein with the vegetable oils has created market for about 120 000 to 130 000 tonnes of palm olein per annum. The Ministry of Industries has issued instructions to the refiners to use only up to 15% palm olein with hydrogenated soya bean oil to make vegetable ghee and shortening for the Iranian market (Kheiri, 1990).

Greece

Status

Greece is a country in the Mediterranean region, a full member of the EEC, and has a population of 10 million. The country is about 45% self-sufficient in oilseeds, 28% in oilmeals and 12% in oils and fats. The main oilseed crop is cotton, but crushings of soya bean are much larger.

Imports of oils and fats are relatively small at 10 kg per capita or 100,000 tonnes per annum, because the country is a substantial net exporter (export/import ratio = 1:3), but nevertheless palm oil imports are growing fast (11% per annum) and this year are expected to reach the top position at about 25 000 tonnes.

RBD palm oil is used at very high levels in margarines, shortenings and frying and further increase here will therefore be limited to the rate of expansion of these industries.

Palm olein has now broken into the retail sector (a very major development) but it is more expensive than local cottonseed oil or sunflower oil. To capture the largest share of the market it must also offer a price advantage.

The actual imports of palm oil products by Greece are probably 25%–35% higher than shown in international trade journals, because they are mainly imported as branded shortening from EU or come in small loads and drums for the frying and catering industries and this trade is not recorded in the trade journals. Only one company is large enough to import palm oil products from their origin and other importers can only participate in the shipment by permission.

On the whole the import of palm oil products is expected to grow at about 10% per annum in the future.

Legislation

On 1 January 1992 the country's trade legislation was brought into full harmonization with EEC, and blends of different vegetable oils became legal.

Unilever has just introduced for the retail market, a blend of sunflower oil, palm olein and groundnut oil (declared on the label), under the brand name FRIOL (the same as in Italy). The product is priced

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at the premium end of the market and promoted especially for frying. At least two other companies are planning to follow suit (1992) and probably with 100% palm olein (double fractionated).

Fatty acid composition of palm olein blends sold for household use in the European Countries of the Mediterranean region is as follows:-

	% (by GLC)
16.0 (Palmitic)	12.3
Other saturates	5.7
Monounsaturates	32
Polyunsaturates	50
	100

Other values of importance are cloud point of 3°C to 3.5°C and Rancimat of nine hours at 100°C. Such products are best formulated using double-fractionated RBD palm olein of Malaysian origin.

CONCLUSION

If blending is permitted, palm olein can be blended with a more unsaturated oil to provide physical stability as measured by the cloud point. It is gaining popularity and is well known to many intending users. The outstanding benefits of blending oils with palm olein are that it could bring down the costs, provide good quality oil and could be suited to any markets.

In the Mediterranean region, the current usage pattern of edible oils are high in liquid oils as compared to solid fats. A blend of palm olein and rapeseed oil or sunflower oil or groundnut oil is currently available in the market namely in Algeria, Egypt, Greece or Italy. In addition, Egypt provides the flexibility of higher proportion of palm olein in their blends based on seasonal variations such as climatic and temperature difference according to locations.

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