



THE PRODUCT

Palm-based multipurpose liquid creamer (PMLC) is a substitute for dairy-based creamer and coconut milk. It is specially formulated using palm-based oils and can be plain or flavoured, depending on its intended final use. PMLC has a desirable cream-like flavour, texture and performance, and is virtually indistinguishable from natural dairy or coconut creamers. PMLC is intended to substitute dairy creamer in hot beverages such as coffee, tea and cocoa. The PMLC can also be used to replace coconut creamer in the preparation of local desserts (e.g. *bubur*, *kuih lapis* and *kuih bingka*) and savory cuisines (e.g. *nasi lemak* and curry). Examples of foods and beverage than can be prepared using PMLC are shown in *Figure 1*.

The function of a creamer which is available either in powder and liquid form, is to impart a desirable cream-like flavour, body and texture to foods and beverages to which it is added. The most widely and frequently used creamer for beverages, especially coffee which is a heavily consumed drink in the world, is dairy-based creamer, e.g., milk/milk powder, evaporated milk and dairy-based coffee creamer. The dairy-based creamer, however, has nutritional shortcomings, i.e., it contains cholesterol (Pordy, 1994). One cup of whole milk, low-fat milk and non-fat milk contains 33 mg, 10 mg and 4 mg of cholesterol, respectively.

On the other hand, coconut milk or *santan kelapa* is a very popular ingredient in Southeast Asia, especially for the preparation of savoury dishes like creamed rice or *nasi lemak* and curries. Coconut milk is also widely used in the preparation of traditional Malaysian desserts like *kuih lapis*, *kuih bingka*, *bubur*, *cendol* and *air batu campur*. In Malaysia, however, coconut is always short in supply and this tends to cause an increase in its price. The common alternatives to coconut milk are yogurt and milk (Tan, 2016).

THE TECHNOLOGY

Technologies offered are palm-based multipurpose liquid creamer formulation and process for the manufacturing of the multipurpose liquid creamer.



Figure 1. Clockwise from top left – nasi lemak, coffee, curry mee, puding sagu and kuih lapis.

PMLC is a healthful creamer and is free of *trans* fatty acids and cholesterol. It can be formulated to contain high monounsaturated fatty acids, reduced saturated fatty acids or balanced monounsaturated, polyunsaturated and saturated (1:1:1) fatty acids. As it is formulated using palm-based oils, PMLC contains an appreciable amount of vitamin E. The PMLC which has viscosity of about 40 centipoise at 5°C and 30 centipoise at 10°C stays fresh and stable (without separation) when stored for 6 months at 5°C and 10°C.

To maintain its freshness and stability especially at higher storage temperature (15°C-30°C) and to extend its shelf/storage stability, sterilisation *e.g.*, by retort or irradiation method is recommended.

Consumer acceptance tests showed that food prepared using the PMLC received comparable scores to the natural creamer (coconut milk). Sensory score for local dessert prepared using PMLC vs. coconut milk is shown in Figure 2.

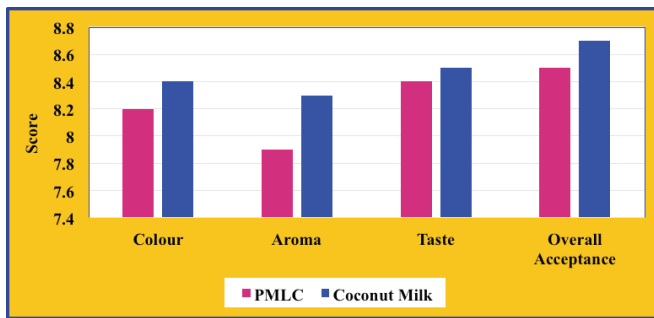


Figure 2. Sensory score for local dessert prepared using palm-based multipurpose liquid creamer (PMLC) in comparison to coconut milk.

PRODUCT NOVELTY

Palm-based multipurpose creamer formulation that can be used to impart creamy flavour to beverages, desserts and savoury cuisines.

PRODUCT BENEFITS & ADVANTAGES

- Healthful - free of *trans* fatty acid and cholesterol, and can be fortified with palm phytonutrients.
- Can be formulated to have a balance fatty acid composition or high level of monounsaturated fatty acids (MUFA). MUFA has been proven as good for the heart.
- Has good nutritive value, *i.e.*, high in palm vitamin E (rich in tocotrienol). Palm vitamin E is a potent antioxidant and has a myriad of health benefits such as anticancer, cardiovascular disease prevention, hypocholesterolemia, anti-inflammatory and neuroprotection effects.
- Can fulfill the needs for market segments where religious or health conditions restrict the use of dairy-based and coconut-based creamers.
- Does not contain lactose and therefore is ideal for people who have lactose intolerance.
- Shelf stable, do not need to be refrigerated.
- May be flavoured to suit specific applications such as for cold and hot beverages, desserts or savoury cuisine.

- Available in high or low fat version.
- Multipurpose - suitable as creamer for many food applications, *e.g.*, as beverage creamer to replace dairy milk/cream, or as creamer in savoury cuisine and dessert to replace coconut milk.
- Low production cost and highly profitable.

COMMERCIAL BENEFITS AND ECONOMIC ANALYSIS THE PRODUCT

The PMLC has great potential to be marketed at local and global markets as alternative to dairy-based and coconut-based creamers.

The investment prospective is attractive with a payback period of three years. The commercial venture is expected to yield benefit to cost ratio of 1:1.07, net present value of RM 1 987 824 and internal rate of return of 43%. The investment proposition is financially feasible.

REFERENCES

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