Palm Mid-Fraction Fat & Vegetable Oil Blends for Reducing LDL and VLDL Cholesterols

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Technology description

As was the case with the original SMART BALANCE blend of four natural oils, these newer heart-healthy blends contain sufficient solid fat content to harden the products at room temperature while still maintaining the cholesterol-lowering effect provided by the one or more functional polyunsaturated vegetable oils. The resulting blended fat and oil compositions with different melt points have multiple

commercial uses in food manufacturing including margarines, table spreads, cooking oils and fats, shortenings, baked goods, frying oils, dairy products (e.g. cheese, yogurt, milk), fat-containing confectionary goods, mayonnaises, condiments and salad dressings.
·The opportunity is a healthy blended fat or oil product for use in processed foods containing:
o At least one palm mid-fraction fat (10-22%)
o At least one unsaturated vegetable oil (60-90%) and
o A final 15-45% linoleic acid [18:2n6] content based on the total weight of all fatty acids
· Effective vegetable oils used in the food manufacturing processes include safflower, olive, corn, canola, sunflower, soybean, cottonseed and peanut oils
· Blended products are fluid at 35 ^{o} C while forming solid or semi-solid products at 20 ^{o} C
Over 50 years of clinical research has established a clear link between the types of dietary fats (triglycerides) consumed and their ability to modulate total cholesterol levels (TC) found in blood. Common hardening/hardstock fats used in commercial food processing (e.g. palm oil, palm mid-fraction, stearin fats), are high in saturated fatty acids (SFA) that are associated with raising TC in blood including both low density lipoprotein cholesterol (LDL-C) and high density lipoprotein cholesterol (HDL-C). HDL-C is considered to be the "good" cholesterol while LDL-C and very low density lipoprotein cholesterol (VLDL-C) are often referred to as the "bad" cholesterols since higher levels of TC, VLDL-C and LDL-C are all linked to higher incidences of cardiovascular disease. Adding the appropriate amount of polyunsaturated fatty acids (PUFA) in the form of linoleic acid (18:2n6) favorably impacts the metabolism of lipoproteins.
The current invention for commercialization covers novel blended dietary fat compositions for food processing that contain palm mid-fraction hardstock fat combined with sufficient levels of linoleic acid to enhance lipoprotein metabolism. In fact, such fat blends can promote the lowering of LDL-C and VLDL-C in blood plasma without lowering HDL-C when consumed regularly over a period of weeks. Surprisingly, palm mid-fraction as the hardstock fat blended with oils rich in PUFA is found to be more effective at reducing TC in subjects than other palm oil products and hardstock fats. The latter includes whole palm oil, palm stearin, partially hydrogenated trans-containing fats and interesterified fats that often contain SFA or a trans-fatty acid at the middle (sn-2) position in the triglyceride molecule, negatively affecting LDL-C and HDL-C metabolism.

Application area

The resulting blended fat and oil compositions have multiple commercial uses in food manufacturing including margarines, table spreads, cooking oil/fat, shortenings, baked goods, frying oils, dairy products (e.g. cheese, yogurt, milk), fat-containing confectionary goods, mayonnaise and salad dressings.

Advantages

Formulation versatility allows for solid or liquid for use in many types of processed foods
Beneficially improves a person's lipoprotein in blood plasma by replacing conventional dietary fats

Consistent consumption reduces one's risk of developing coronary heart disease by:
Decreasing LDL level
Decreasing VLDL level and
Lowering total serum cholesterol

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