

# Plant Phytosterol-Fat Blends with Increased Bioavailability for Lowering LDL Cholesterol

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## Technology description

Plant phytosterols (i.e. plant sterols and stanols, including beta-sitosterol, beta-sitostanol, campesterol, campestanol, stigmasterol, stigmastanol, brassicasterol, brassicastanol, clionasterol and clionastanol) have been shown to lower serum LDL cholesterol levels in subjects by inhibiting absorption of cholesterol in the small intestine. Appreciable benefits from their incorporation into processed foods was thought to only occur by dissolving the phytosterols in an edible oil or other permissible solvent or emulsifier.

Our opportunity provides a more bio-effective form of phytosterols for use in fortifying fat-containing prepared foods without the need for microcrystalline powdered forms or exogenous solubilizers, emulsifiers or other dispersant additives. We have found heat-solubilizing non-esterified phytosterols in fat or oil, followed by cooling, results in the recrystallization of a binary complex of triglycerides and phytosterols. In addition to having higher bioavailability, these compositions decrease the oxidation of polyunsaturated-containing fats used in prepared foods.

Our phytosterol-fat blends are palatable ingredients for use in processed food products marketed to promote health and wellness by reducing one's risk of cardiovascular disease. Potential product uses include cooking oils, margarines, shortenings, spreads (peanut butter or other seed, kernel and nut butters), condiments (salad dressings, mayonnaises, barbecue sauces), baked goods, dairy (cheese and other fat-containing products), fried snacks (French fries; potato chips; corn chips), and dietary supplements.

A proprietary formulation of non-esterified plant phytosterols blended with a dietary fat or oil that can be used in functional foods (e.g. cooking oils; margarines; shortenings; spreads; condiments; baked goods; condiments) for promoting heart-health. Our phytosterol-fat blend increases bioavailability in the gut without the use of exogenous solubilizers or emulsifiers and effectively lowers LDL cholesterol levels in blood serum and liver when consumed regularly.

## Application area

Cardiovascular/heart health and wellness product claims for functional food products including:

Dietary supplements (capsule, pill or wafer forms)

Nutraceutical fat ingredient in prepared foods

Spreads, margerines, dairy, fried snacks and condiments

Cooking oils and shortenings

## Advantages

Natural (non-esterified) phytosterol-containing fat blends that are free of exogenous emulsifiers

Simplified and more cost-effective formulating and food production (i.e. avoids use of chemically modified, microcrystalline or more perishable formulations)

Stabilizes fats and oils against oxidation and rancidity during cooking and storage for longer shelf life

Decreases caloric content and the surface oiliness of foods fried in fats and oils

Regular consumption reduces risk of developing heart disease by lowering serum LDL cholesterol levels

## Institution

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