ORGANIC NUTRITIONAL FORMULA

TECHNICAL FIELD

This invention relates to an improved nutritional formula which is "organic" and possesses highly acceptable taste and mouth feel. The nutritional formula uses organic brown rice syrup as the major source of carbohydrate and non-solvent extracted edible oils as the source of lipids.

BACKGROUND OF THE INVENTION

A growing number of individuals are turning to "organic" foods as their preferred source of nutrition. Organic foods are not genetically modified and are grown and prepared without the use of chemical pesticides, growth hormones, antibiotics, herbicides or synthetic fertilizers and are processed without the use of solvents such as hexane. Further, organic ingredient processing is like kosher processing in that separate production lines are used for organic and non-organic ingredients or special cleaning procedures are used between non-organic and organic runs.

A number of certification boards and some states, such as California, have procedures and regulations that must be followed for a food ingredient or food product to be labeled as organic. One such board is the National Organic Standards Board (NOSB). The NOSB requires organic growers not to have used chemical pesticides, herbicides or fertilizers on their land for at least three years. NOSB standards currently allow up to 5 percent of the ingredients in nutritional products labeled "organic" to be non-organic, provided those ingredients are not widely available in organic form.

The consuming public is aware that organic foods reduce the health risks associated with consuming foods that are tainted with chemical solvents, pesticides, herbicides, and the like. While adults can carefully choose their source of nutrition, infants, toddlers and children are forced to consume liquid formulas that are not organic. One aspect of the present invention is directed to an infant formula and a nutritional beverage for toddlers and children that is organic. The invention is also directed to a method to prepare such nutritional beverages.

Conventional infant formulas are derived, to a large extent, from cow's milk. After being diluted, the cow's milk is enriched with whey proteins, diverse carbohydrates such as lactose, dextrin, sucrose, maltose and starches, different mixtures of vegetable and animal fats, vitamins and minerals. These components are present in suitable amounts to meet the requirements of low birth weight newborns or term healthy infants as a sole source of nutrition during the first and second semesters of life.

Sometimes, infant formulas also contain isolated milk proteins, isolated vegetable proteins or protein hydrolyzates, from diverse sources such as casein, lactalbumin, soy and meat. Also, these infant formulas have one or more carbohydrates (sucrose, dextrin, maltose and starch), mixtures of diverse kinds of fats, minerals and vitamins, to meet not only the healthy newborns' nutritional requirements, but also of infants and children with clinical symptoms of lactose intolerance, protein intolerance and, in general, with diverse malabsorption-malnutrition syndromes.

The European Society of Pediatric Gastroenterology and Nutrition (ESPGAN), the American Academy of Pediatric (AAP), the Codex Alimentarius Mundi, and the European Community Council, among other organizations, have set forth general guidelines for the composition of infant formulas.

As used herein, the term "infant formula" is intended to refer to the well established understanding as defined in the United States Infant Formula Act, (106 and 107 C.F.R.). The term "organic" is intended to refer to a food that complies with the Federal Organic Foods Production Act (1990) or the California Organic Foods Act of 1990 or those certified by the National Organic Standards Board.

Nutritional products, other than infant formulas, such as those currently used in hospitals, are based on the utilization of diverse protein sources (casein, sodium and calcium caseinate, isolated soy protein, protein hydrolyzates and/or crystalline amino acids), mixtures of vegetable and animal fats, carbohydrates (basically glucose polymers), vitamins and minerals to meet, at least, the dietary intakes recommended for healthy individuals (Committee on Dietary Allowances, Food and Nutrition Board, Nat Acad Sci, 9th Ed, 1980).

Protein energy malnutrition (PEM) is found in many patients admitted to hospitals. This happens not only in developing countries, but also in those with a high socio-economic level. Proper nutritional support for such patients, while not a primary mode of treatment is, nevertheless, an important factor for therapy and recovery. It is, therefore important to administer a nutritionally balanced organic diet free of contaminates such as pesticides and herbicides, adequate to the needs of the patient. This is especially true for those patients where conventional feeding is contra-indicated (gastroenterological patients) or is insufficient (hypercatabolic patients). Further, these patients are at greater risk for developing complications that are associated with foods contaminated with pesticides, herbicides and chemical solvents.

BACKGROUND ART

Numerous nutritional formulas have been developed and patented over the years. Representative formulas are disclosed in the following U.S. Pat. No. 4,544,559 to Gil et al.; U.S. Pat. No. 4,670,268 to Mahmoud; U.S. Pat. No. 4,994,442 to Gil et al.; U.S. Pat. No. 5,021,245 to Borschel et al.; U.S. Pat. No. 5,066,500 to Gil et al.; U.S. Pat. No. 5,340,603 to Neylan et al.; U.S. Pat. No. 5,492,899 to Mason et al.; U.S. Pat. No. 5,700,590 to Mason et al.; and U.S. Pat. No. 5,709,888 to Gil et al. The teachings of these patents, as they evidence the state of the art, are herein incorporated by reference.

While much work has been done to prepare various nutritional formula, there has been no effort put forth to develop an organic nutritional formula. It is thus apparent that a need exists for a pleasant tasting organic nutritional formula that will provide significant levels of nutrition.

DISCLOSURE OF THE INVENTION

There is disclosed a nutritional formula, said formula comprising: 1) organic protein, said protein being of a concentration of between 10 and 25 grams per liter of formula; 2) organic lipid, said lipid being of a concentration of between 20 and 45 grams per liter of formula; 3) organic carbohydrates, said carbohydrates being of a concentration of between 60 and 110 grams per liter of formula; 4) vitamins; and 5) minerals. As used herein and in the claims the values reported per liter of formula are for a ready to feed (RTF) liquid nutritional.

The protein has as its source organic non-fat dry milk, soy protein, sodium and calcium caseinates or blends thereof; said lipid has as its source organic soy, coconut, high oleic sunflower oil or another organic vegetable oil or a blend