[0008] Third, plastic containers have increased permeability to environmental air as compared to metal containers. Because air can more easily permeate plastic and enter the nutritional composition matrix, an increase in oxidation can occur in the nutritional composition.

[0009] The reduction in pH of the nutritional liquid over time due to oxidation as described above can have numerous detrimental effects on the nutritional liquid inside the package including: (1) increasing the release of bound minerals, which in ionic form can compromise stability of the nutritional liquid due to precipitation; (2) increasing the amount of catalytic oxidation, particularly of iron and copper species; (3) increasing the amount of protein precipitation; and (4) increasing vitamin C destabilization. Any one of these unwanted effects can significantly reduce the commercial acceptability of the nutritional liquid.

[0010] There is therefore a need for stable nutritional liquids, such as stable protein or milk-based liquids or emulsions, that can be retort or aseptically sterilized and packaged in plastic containers or packages and that are stable and resistant to a reduction in pH over time.

SUMMARY OF THE DISCLOSURE

[0010a] In one embodiment, there is provided a composition comprising a plastic package and a nutritional liquid contained therein, the nutritional liquid comprising beta-hydroxy-beta-methylbutyrate and at least one of fat and protein.

[0010b] In one embodiment, there is provided a composition comprising a plastic package and a retort-sterilized nutritional liquid contained therein, the nutritional liquid comprising at least about 4.5 grams of beta-hydroxy-beta-methylbutyrate per kiiogrami nutritional liquid, fat, protein, and carbohydrate, wherein the protein is comprised of from about 35% to 100% soluble protein.

[0010c] In one embodiment, there is provided a composition comprising a plastic package and an aseptically-sterilized nutritional liquid contained therein, the nutritional liquid comprising at least about 4.5 grams of beta-hydroxy-beta-methylbutyrate per kilogram nutritional liquid, fat, protein, and carbohydrate, wherein the protein is comprised of from about 35% to 100% soluble protein.

[0010d] In one embodiment, there is provided a method of preparing a pH-stable nutritional liquid in a plastic package, the method comprising:

combining a fat, protein, carbohydrate and beta-hydroxy-beta-methylbutyrate together to form a nutritional liquid;

introducing the nutritional liquid into a plastic package; and

retort sterilizing the nutritional liquid in the plastic package.

[0010e] In one embodiment, there is provided a method of preparing a pH-stable nutritional liquid in a plastic package, the method comprising:

combining a fat, protein, carbohydrate and beta-hydroxy-beta-methylbutyrate together to form a nutritional liquid,

sterilizing the nutritional liquid;

sterilizing a plastic package; and

introducing the sterilized nutritional liquid into the sterilized plastic package.

[0011] The present disclosure is directed to packaged nutritional compositions comprising a plastic package and a nutritional liquid contained therein, the nutritional liquid comprising beta-hydroxy-beta-methylbutyrate and at least one of fat, protein, and carbohydrate.

[0012] The present disclosure is further directed to packaged nutritional compositions comprising a plastic package and a nutritional emulsion contained therein, the nutritional emulsion being an oil-in-water emulsion comprising beta-hydroxy-beta-methylbutyrate and fat.

[0013] The present disclosure is further directed to packaged nutritional compositions comprising a plastic package and a retort-sterilized nutritional composition contained therein, the nutritional liquid comprising at least about 4.5 grams of beta-