several exemplary embodiments of whey protein based liquid nutritional compositions are provided herein.

[0005] In one exemplary embodiment, a whey protein based liquid nutritional composition is provided. The liquid nutritional composition includes at least 7% by weight protein, wherein the protein consists of a whey protein hydrolysate and an intact whey protein. The liquid nutritional composition has a pH of 6.4 to 7.5, a viscosity of 5 cps to 30 cps, and is shelf stable.

[0006] In one exemplary embodiment, a weight ratio of the whey protein hydrolysate to the intact whey protein is from 1:4 to 4:1. The intact whey protein may be at least one of a whey protein concentrate and a whey protein isolate.

[0007] In one exemplary embodiment, the liquid nutritional composition also includes from 1,500 ppm to 3,000 ppm of a stabilizer component. In such an embodiment, the stabilizer component may include at least one of microcrystalline cellulose, carboxymethylcellulose, gellan gum, and carrageenan.

[0008] In one exemplary embodiment, a whey protein based liquid nutritional composition is provided. The liquid nutritional composition includes from 7% by weight to 15% by weight protein, wherein the protein consists of a whey protein hydrolysate and an intact whey protein, and a weight ratio of the whey protein hydrolysate to the intact whey protein may be from 1:4 to 4:1. The liquid nutritional composition has a pH of 6.4 to 7.5, a viscosity of 5 cps to 30 cps, and is shelf stable. In one aspect of such an embodiment, the intact whey protein may be at least one of a whey protein concentrate and a whey protein isolate. In another aspect of such an embodiment, the whey protein hydrolysate may have a degree of hydrolysis of 5% to 30%. In certain of the preceding embodiments, the liquid nutritional composition may also include from about 1,500 ppm to about 3,000 ppm of a stabilizer component, wherein the stabilizer component may include at least one of microcrystalline cellulose, carboxymethylcellulose, gellan gum, and carrageenan.

[0008a] In one exemplary embodiment, a liquid nutritional composition comprising:

carbohydrate, wherein the liquid nutritional composition comprises the carbohydrate at less than 2.1% by weight of the liquid nutritional composition;

at least 7% by weight protein, wherein the protein consists of a whey protein hydrolysate and an intact whey protein;

wherein the weight ratio of the whey protein hydrolysate to the intact whey protein is from 1:4 to 4:1;

wherein the liquid nutritional composition has a pH of 6.4 to 7.5, a viscosity of 5 cps to 30 cps, and is shelf stable is provided.

DETAILED DESCRIPTION

[0009] While the general inventive concepts are susceptible of embodiment in many different forms, described herein in detail are specific embodiments thereof with the understanding that

WHAT IS CLAIMED IS:

1. A liquid nutritional composition comprising:

carbohydrate, wherein the liquid nutritional composition comprises the carbohydrate at less than 2.1% by weight of the liquid nutritional composition;

at least 7% by weight protein, wherein the protein consists of a whey protein hydrolysate and an intact whey protein;

wherein the weight ratio of the whey protein hydrolysate to the intact whey protein is from 1:4 to 4:1;

wherein the liquid nutritional composition has a pH of 6.4 to 7.5, a viscosity of 5 cps to 30 cps, and is shelf stable.

2. The liquid nutritional composition according to claim 1, wherein the liquid nutritional composition comprises the carbohydrate at less than 1.5% by weight of the liquid nutritional composition.

3. The liquid nutritional composition according to claim 1 or claim 2, wherein the weight ratio of the whey protein hydrolysate to the intact whey protein is from 3:7 to 7:3.

4. The liquid nutritional composition according to claim 1 or claim 2, wherein the weight ratio of the whey protein hydrolysate to the intact whey protein is 1:1.

5. The liquid nutritional composition according to any one of claims of 1 to 4, wherein the intact whey protein is at least one of a whey protein concentrate and a whey protein isolate.

6. The liquid nutritional composition according to any one of claims 1 to 5, wherein the whey protein hydrolysate has a degree of hydrolysis of 5% to 30%.

7. The liquid nutritional composition according to any one of claims 1 to 6, wherein the whey protein hydrolysate has a degree of hydrolysis of 10% to 12%.

8. The liquid nutritional composition according to any one of claims 1 to 7, further comprising from 1,500 ppm to 3,000 ppm of a stabilizer component.

9. The liquid nutritional composition according to claim 8, wherein the stabilizer component comprises at least one of microcrystaliine cellulose, carboxymethyl cellulose, gellan gum, and carrageenan.

10. The liquid nutritional composition according to any one of claims 1 to 9, further comprising a fat, wherein the fat comprises at least one of high oleic sunflower oil, soy lecithin, canola oil, corn oil, coconut oil, fractionated coconut oil, soy oil, high oleic soy oil, olive oil, safflower oil, high oleic safflower oil, high gamma-linolenic acid safflower oil, medium chain triglyceride oil, sunflower oil, palm oil, palm kernel oil, palm olein, high oleic canola oil, marine oil, cottonseed oil, eicosapentaenoic acid, docosahexaenoic acid, gamma-linolenic acid, rice bran oil, wheat germ oil, algal oil, nut oil, fungal oil, and conjugated linolenic acid.

11. The liquid nutritional composition according to any one of claims 1 to 10, further comprising a sweetener, wherein the sweetener comprises at least one of acesulfame potassium, sucralose, aspartame, saccharin, and stevia.

12. The liquid nutritional composition according to any one of claims 1 to 11, wherein the liquid nutritional composition has a protein to carbohydrate weight ratio of 4:1 to 8:1.

13. The liquid nutritional composition of any one of claims 1-12, wherein the liquid nutritional composition comprises

from 7% by weight to 15% by weight protein.

14. The liquid nutritional composition according to claim 13, wherein the liquid nutritional composition comprises carbohydrate at less than 1.5% by weight of the composition.

15. The liquid nutritional composition according to claim 13 or claim 14, wherein the weight ratio of the whey protein hydrolysate to the intact whey protein is 1:1.