Claims

1. A method of producing a plant-based oil-in-water emulsion comprising the steps of

providing an ingredient composition for the plant-based oil-in-water emulsion, wherein the ingredient composition is free from dairy protein, the ingredient composition comprising protein and oil,

wherein the protein in the ingredient composition is 1 .5 to 5 wt. % of the ingredient composition and consists of plant protein only, and

wherein the oil in the ingredient composition is 0.5 to 10.5 wt % of the ingredient composition, and has a pH of 5.3-6.7;

heat treating the ingredient composition to a temperature of 80°- 100°C for a period of 0.5 – 15 min or an ultra high temperature (UHT) heat treatment above 135°C for 3 to 30 s to form agglomerates comprising the protein and the oil; and

shearing the ingredient composition during or after the heat treatment to reduce the size of the agglomerates s, thereby resulting in the plant-based oil-in-water emulsion,

wherein the agglomerates have a size of 5 to 50 microns as measured by D(4,3) mean diameter as measured by laser diffraction after the shearing.

2. The method according to claim 1, wherein the shearing is performed until the ingredient composition has a viscosity at 10 s-1 and 20°C of 1 - 900 mPa.s.

3. The method according to claim 1, wherein the shearing of the agglomerates is performed by a rotor/stator shearing.

4. The method according to claim 1, wherein the shearing of the agglomerates is performed by a high pressure homogenizer.

5. The method according to claim 1, wherein the plant protein in the ingredient composition is selected from the group consisting of leguminous proteins, tuber proteins, oil seed proteins, cereal proteins and green leaves proteins.

6. The method according to claim 1, further comprising: adding divalent cations to the ingredient composition until a concentration of the divalent cations is 3.5 – 5 mM of the ingredient composition.

7. The method according to claim 6, wherein the divalent cations are selected from the group consisting of Ca and Mg cations and combinations thereof.

8. The method according to claim 1, further comprising: adding an acid to the ingredient composition, wherein the acid is selected form the group consisting of: vegetable lactic acid, glucono-delta-lactone, phosphoric acid, ascorbic acid, acetic acid, citric acid, malic acid, hydrochloric acid, and combinations thereof.

9. The method according to claim 1, wherein the plant protein is leguminous proteins selected from the group consisting of yellow pea, green pea, faba bean, soybean, lupin, lentil, and combinations thereof.

10. The method according to claim 9, further comprising: treating the leguminous protein with a technique selected from the group consisting of: extracted using isoelectric precipitation, enzymatic processes, air classification, and combinations thereof.

11. The method according to claim 1, wherein the plant protein is cereal in the form of a powder.

12. The method according to claim 11, wherein the cereal comprises at least one of rice, brown rice, rice bran, corn, wheat, oat, and combinations thereof.

13. The method according to claim 1, wherein the plant protein is an edible nut in the form of a paste or a powder.

14. The plant-based oil-in-water emulsion obtained by a method according to claim 1.

15. A method of producing a composition selected from the group consisting of: ready-to-drink (RTD) beverages, culinary sauces, coffee mixes, tea creamers, ice cream or cocoa-malt beverages, the method comprising adding a plant-based oil-in-water emulsion according to claim 14 to another ingredient of the composition.