CLAIMS

1. A plant-based vegan simulated egg yolk composition comprising the components:
tomatoes or natural orange color such as beta-carotene, canola oil, calcium lactate, chickpeas, turmeric, miso; and

a) beta-glucan from a grain bran or oat fibre, plant-based emulsifier, natural flavoring and a gum; or

b) kala namak, aquafaba, mustard, paprika and chilli powder; or

c) kala namak, aquafaba, mustard and a gum,

wherein the egg yolk has been encapsulated in sodium alginate by reverse-spherification.

2. The plant-based vegan simulated egg yolk composition of claim 1, wherein in a) the beta-glucan is from oat fibre or barley.

3. The plant-based vegan simulated egg yolk composition of claim 1 or 2, comprising:
tomatoes in an amount of 25-35 wt%, canola oil in an amount of 15-30 wt%, calcium lactate in an amount of 0.5-3 wt%, chickpeas in an amount of 5-15 wt%, turmeric in an amount of about 0.1-2 wt%, miso paste in an amount of 2-7 wt%; and

a) oat bran powder in an amount of 1-5 wt%, soy lecithin in an amount of 0.5-1 wt%, natural flavoring in an amount of 1-3 wt% and gellan gum in an amount of 0.05-0.1 wt%; or

b) kala namak in an amount of 0.5-2.0 wt%, aquafaba in an amount of 20-30 wt%, mustard in an amount of 1-5 wt%, paprika in an amount of 0.4-0.6 wt% and chilli powder in an amount of 0.1-0.2 wt%; or

c) kala namak in an amount of 0.5-2.0 wt%, aquafaba in an amount of 20-30 wt%, mustard in an amount of 1-5 wt% and xanthan gum in an amount of 0.05-2 wt%,
by weight of said egg yolk composition.

4. The plant-based vegan simulated egg yolk composition of claim 1 or 2, comprising:

a) tomatoes in an amount of 25-30 wt%, canola oil in an amount of 15-20 wt%, calcium lactate in an amount of 1-3 wt%, chickpeas in an amount of 10-15 wt%, turmeric in an amount of 0.1-0.5 wt%, miso paste in an amount of 5-7 wt%, oat bran powder in an amount of 1-5 wt%, soy lecithin in an amount of 0.5-1 wt%, natural flavoring in an amount of 1-3 wt%, and gellan gum in an amount of 0.05-0.1 wt%; or

b) tomatoes in an amount of 25-35 wt%, canola oil in an amount of 20-30 wt%, calcium lactate in an amount of 0.5-2 wt%, chickpeas in an amount of 5-10 wt%, turmeric in an amount of 0.1-2 wt%, miso paste in an amount of 2-5 wt%, kala namak in an amount of

0.5-2.0 wt%, aquafaba in an amount of 20-30 wt%, mustard in an amount of 1-5 wt%, paprika in an amount of 0.4-0.6 wt%, and chilli powder in an amount of 0.1-0.2 wt%; or

c) tomatoes in an amount of 25-35 wt%, canola oil in an amount of 20-30 wt%, calcium lactate in an amount of 0.5-2 wt%, chickpeas in an amount of 5-10 wt%, turmeric in an amount of 0.1-2 wt%, miso paste in an amount of 2-5 wt%, kala namak in an amount of 0.5-2.0 wt%, aquafaba in an amount of 20-30 wt%, mustard in an amount of 1-5 wt%, and xanthan gum in an amount of 0.05-2 wt%,

by weight of said egg yolk composition.

5. The plant-based vegan simulated egg yolk composition of any one of claims 1 to 4, wherein in a) the natural flavoring is black salt and/or nutritional yeast.

6. The plant-based vegan simulated egg yolk composition of any one of claims 1 to 4, wherein in b) or c) the canola oil is substituted in whole or in part by another plant oil, such as rapeseed oil, peanut oil, vegetable oil, soya bean oil.

7. The plant-based vegan simulated egg yolk composition of claim 6, wherein 10 wt% to 90 wt%, preferably 20 wt% to 60 wt%, of the canola oil is substituted by a rapeseed oil containing phytosterols, such as Vividol® T oil or Akoplanet RS0 100-17100-17.

8. The plant-based vegan simulated egg yolk composition of any one of claims 1 to 7, wherein in b) or c) the mustard is selected from the group comprising Dijon mustard, English mustard and whole grain mustard.

9. The plant-based vegan simulated egg yolk composition of any one of claims 1 to 8, further comprising one or more coloring agents. Suitable examples include apocarotenal (IUPAC ID: (2*E*,4*E*,6*E*,8*E*,10*E*,12*E*,14*E*,16*E*)-2,6,11,15-tetramethyl-17-(2,6,6-trimethylcyclohexen-1-yl)heptadeca-2,4,6,8,10,12,14,16-octaenal), or beta carotene (IUPAC ID: 1,3,3-trimethyl-2-[(1E,3E,5E,7E,9E,11E,13E,15E,17E)-3,7,12,16-tetramethyl-18-(2,6,6-trimethylcyclohexen-1-yl)octadeca-1,3,5,7,9,11,13,15,17-nonaenyl]cyclohexene).

10. The plant-based vegan simulated egg yolk composition of any one of claims 1 to 9, wherein in c) the composition comprises:

tomatoes in an amount of about 29.4 wt%, canola oil in an amount of about 24.8 wt%, Vividol-T oil in an amount of about 6.2 wt%, kala namak in an amount of about 1 wt%, calcium lactate in an amount of about 1 wt%, aquafaba in an amount of about 23.7 wt%, chickpeas in an amount of about 7 wt%, mustard in an amount of about 2 wt%, turmeric in

an amount of about 0.5 wt%, miso paste in an amount of about 4.2 wt%, gum in an amount of about 0.1 wt% and natural orange colouring agent, such as apocarotenal, in an amount of about 0.2 wt%,
by weight of said egg yolk composition.

11. A method for producing a vegan simulated egg yolk composition of any one of claims 1 to 10, comprising the steps:

i) combine, until well-mixed, water and sodium alginate to form a 0.7% (7 g/L) alginate solution and refrigerate;

ii) combine, until well-mixed, the components defined in any one of claims 1 to 9, except calcium lactate, and remove fine particles with a fine mesh sieve;

iii) combine, until well-mixed, calcium lactate and the mixture of ii);

iv) refrigerate the mixture of iii) in portions in moulds for about 15 min;

v) place the moulds in a freezer for 50-60 min;

vi) encase the portions of v) in the sodium alginate mixture i) by reverse spherification to form simulated egg yolks.

12. A plant-based vegan simulated egg yolk composition produced by the method of claim 11.

13. A plant-based vegan simulated egg white composition having the sensory properties of an avian egg white, comprising the components:
tofu, flour, water, kala namak, a plant-based cream, a gum selected from the group of elastic gel-forming gums, preferably high acyl gellan gum; and

a) fava bean protein; or

b) tapioca starch and corn starch.

14. The plant-based vegan simulated egg white composition of claim 13, comprising:

a) tofu in an amount of 60-80 wt%, rice flour in an amount of 0.1-2 wt%, water in an amount of 15-20 wt%, kala namak in an amount of 0.1-2 wt%, plant-based cream in an amount of 2-5 wt%, fava bean protein in an amount of 2-10 wt% and gum in an amount of 0.5-1.5 wt%; or

b) tofu in an amount of 60-75 wt%, rice flour in an amount of 5-10 wt%, water in an amount of 13-20 wt%, kala namak in an amount of 0.5-2 wt%, plant-based cream in an amount of 5-10 wt%, tapioca starch in an amount of 0.5-3 wt%, corn starch in an amount of 0.5-3 wt% and gum in an amount of 0.5-1.5 wt%,
by weight of said egg white composition.

15. The plant-based vegan simulated egg white composition of claim 13 or 14, further comprising a flavour masking agent.

16. The plant-based vegan simulated egg white composition of any one of claims 13 to 15, wherein the tofu is silken tofu; and/or the plant-based cream is selected from coconut, rice, oat, cashew and almond cream.

17. The plant-based vegan simulated egg white composition of claim 15 or 16, comprising:

a) fava bean protein in an amount of about 7%, tofu in an amount of 71.9%, water in an amount of 15.8%, coconut cream in an amount of 3%, rice flour in an amount of 0.5%, black salt in an amount of about 0.2%, gum in an amount of 0.8% and a flavour masking agent in an amount of 0.8%, by weight of said egg white composition; or

b) tofu in an amount of about 66.8 wt%, rice flour in an amount of about 7.2 wt%, water in an amount of about 15.6 wt%, kala namak in an amount of about 0.9 wt%, coconut cream in an amount of about 7.3 wt%, tapioca starch in an amount of about 0.53 wt%, corn starch in an amount of about 0.65 wt% and high acyl gellan gum in an amount of about 0.74 wt%, by weight of said egg white composition.

18. A method for producing a vegan simulated egg white composition of any one of claims 13 to 17, comprising the steps:

i) in a blender, combine the components of a) or b);

ii) blend the combination for about 30 sec, or until completely smooth;

iii) pulse the mixture for about 10 sec, wherein the blending is performed at 22-24 ºC.

19. A plant-based vegan simulated egg white composition produced by the method of claim 18.

20. A plant-based vegan simulated fried egg composition comprising a vegan simulated egg yolk composition having the sensory properties of an avian egg yolk and a vegan simulated egg white composition having the sensory properties of an avian egg white, wherein

a) the egg yolk composition comprises the components defined an any one of claims 1 to 10 or 12; and

b) the egg white composition comprises the components defined an any one of claims 13 to 17;

wherein the egg yolk has been encapsulated by reverse-spherification.

21. The plant-based vegan simulated egg composition of claim 20, wherein

said yolk has been encapsulated using 7 g/L sodium alginate.

22. A method of preparing the plant-based vegan simulated fried egg, comprising heating the plant-based vegan simulated egg white composition of any one of claims 13 to 17in a pan until it simulates a fried egg white; then associating the plant-based vegan simulated egg yolk of any one of claims 1 to 10 or 12 with the fried egg white to resemble a fried egg.

23. A kit or combination comprising:

i) a plant-based vegan simulated egg yolk composition of any one of claims 1 to 10 or 12 and a plant-based vegan simulated egg white of any one of claims 13 to 17 or 19, wherein said egg white and said egg yolk are separated in a container by one or more barriers; or

ii) a plant-based vegan simulated egg yolk composition of any one of claims 1 to 10 or 12; or

iii) a plant-based vegan simulated egg white of any one of claims 13 to 17 or 19.

24. The kit or package of claim 23 (i), wherein said egg white and said egg yolk are separated in the container by a single barrier.

25. The kit or combination of claim 23 (ii), wherein the egg yolk is packaged within a covering layer of vegetable oil to sustain the shape of the yolk.