CLAIMS

1. A method of producing a powder comprising an entrapped or encapsulated bioactive and/or bioactive precursor, the method comprising:

i) obtaining an aqueous mixture comprising protein and carbohydrate from a biomass of a single species of organism;

ii) adding oil to the aqueous mixture;

iii) forming an emulsion or suspension comprising the bioactive and/or bioactive precursor; and

iv) forming a powder comprising an entrapped or encapsulated bioactive and/or bioactive precursor from the emulsion or suspension,

wherein the biomass is a *Brassica*.

2. The method of claim 1, wherein the powder comprises one or more of the following features:

a) has an induction period of about 10 to about 300 hours, when measured at 80˚C;

b) about 5% to about 50% w/w oil;

c) about 10% to about 40% w/w oil; and

d) the oil content of emulsion or suspension before forming the powder is from about 1% to about 10% w/w.

3. The method of claim 1 or claim 2, wherein the aqueous mixture further comprises protein and carbohydrate from at least one further biomass from a single species of organism.

4. The method of any one of claims 1 to 3, wherein the biomass and/or further biomass comprises one or more of:

a) a protein to carbohydrate ratio of between about 1:1 to 1:10.5;

b) a protein to carbohydrate ratio of between about 1:4.5 and about 4:1;

c) a protein to carbohydrate ratio of between about 1:2.5 and about 2:1;

d) the bioactive is an isothiocyanate;

e) the bioactive precursor is a glucosinolate and/or glucoraphanin.

5. The method of any one of claims 1 to 4, wherein the bioactive and/or bioactive precursor is one or more of:

i) a component of the biomass;

ii) the oil or a component thereof in step ii);

iii) a component added to the oil before the oil is added to the aqueous mixture in step ii);

iv) a component infused in the oil before or during step ii);

v) a component of the further biomass;

vi) is a component added in step i), ii) and iii) of the method;

vii) the bioactive is a component of the biomass and the oil or a component thereof in step ii);

viii) the bioactive is formed in or after step i), ii) or iii);

ix) is sensitive to degradation by one or more of: oxygen, temperature, pH, moisture and light;

x) is a phytonutrient;

xi) is selected from one or more of: fatty acid, an isothiocyanate, quercetin, allicin, ajoene, vitamin A, vitamin D, vitamin E, tocopherols, tocotrienols, vitamin K, beta-carotene, lycopene, lutein, zeaxanthin, stigmasterol, beta-sitosterol, campesterol, antioxidants, coenzyme Q10, astaxanthin, cannabinoid, cannabiodiol and a polyphenol;

xii) the bioactive is a fatty acid the fatty acid is: omega-3, omega-6 or omega-9 fatty acid; and

xiii) the bioactive is an omega-3 fatty acid the omega-3 fatty acid is one or more of α-linolenic acid (ALA), eicosapentaenoic acid (EPA), docosapentaenoic acid (DPA) and docosahexaenoic acid (DHA).

6. The method of any one of claims 1 to 5, further comprising pre-treating the biomass, wherein pre-treating comprises one or more of:

i) heating;

ii) macerating;

iii) microwaving;

iv) exposure to low frequency sound waves (ultrasound);

v) pulse electric field processing;

vi) static high pressure;

vii) extrusion;

viii) enzyme treatment;

ix) fermentation;

x) an extraction or separation process; and

xi) drying.

7. The method of any one of claims 1 to 6, wherein the further biomass is one or more of:

a) from the Plantae or Fungi Kingdom;

b) is a Plantae selected from: *Brassicaceae, Cannabis Asparagaceae, Myrtaceae, Rosaceae, Musaceae, Ericaceae, Saxifragaceae, Cucurbitaceae, Nightshade, Capparaceae, Adoxaceae, Vitaceae, Rutaceae, Actinidiaceae, Sapindaceae, Anacardiaceae, Moraceae, Passifloraceae, Bromeliaceae, Cactaceae, Lythraceae, Polygonaceae, Oxalidaceae, Caesalpinioideae, Compositae, Amaranthaceae, Chenopodiaceae, Malvaceae, Amarylidaceae, Fabaceae, Arecaceae* and *Poaceae;*

c) is a Plantae selected from: fruit, vegetable, nut, legume, cereal and a grass;

d) is a Plantae selected from: broccoli, kale, cauliflower, carrot, onion, garlic, tomato, brussel sprouts, spinach, snow peas, asparagus, and avocado;

e) is a Fungi selected from: *Boletaceae, Cantharellaceae, Cortinariaceae, Meripilaceae, Discinaceae, Pleurotaceae, Tricholomataceae* and *Tuberaceae*; and

f) is matcha, canola meal, nut meal, soybean meal, coconut meal, palm kernel meal, hemp oil press cakes, chia oil seed cake or rice bran.

8. The method of any one of claims 1 to 7, wherein the oil comprises one or more of the following:

a) one or more fatty acids;

b) is selected from one or more of: fish oil, krill oil, marine oil, canola oil, sunflower oil, avocado oil, soya oil, borage oil, evening primrose oil, safflower oil, flaxseed oil, olive oil, pumpkinseed oil, hemp seed oil, wheat germ oil, palm oil, palm olein, palm kernel oil, coconut oil, medium chain triglycerides and grapeseed oil; and

c) wherein the oil is fish oil or marine oil and wherein the fish oil or marine oil is selected from one or more of: tuna oil, herring oil, mackerel oil, sardine oil, cod liver oil, menhaden oil, shark oil, algal oil, squid oil, and squid liver oil.

9. The method of any one of claims 1 to 8, wherein the method comprises post-treating the emulsion or suspension to reduce microbial activity wherein post-treating comprises one or more of the following:

i) heating;

ii) microwaving;

iii) UV treatment; and

iv) high pressure processing.

10. The method of any one of claims 1 to 9, wherein forming the powder comprises spray drying, freeze drying, refractance window drying or drum drying and/or

wherein when the entrapped or encapsulated bioactive and/or bioactive precursor is resistant to degradation for about 3 to about 24 months.

11. The method of any one of claims 1 to 10, wherein the method comprises one or both of the following apply:

i) forming a powder comprises drying the emulsion or suspension to reduce the water content to 1 to 14%; and

ii) the emulsion or suspension is dried to produce a mean dry particle size of 10 µM to 4000 µM.

12. The method of any one of claims 1 to 11, wherein the *Brassica* is *Brassica oleracea.*

13. The method of any one of claims 1 to 12, wherein the *Brassica* is *Brassica oleracea variety italic*.

14. The method of any one of claims 1 to 13, wherein the *Brassica* is *Brassica oleracea variety botrytis.*

15. A powder produced by the method of any one of claims 1 to 14, comprising an entrapped or encapsulated bioactive and/or bioactive precursor and comprising protein and carbohydrate from a single species of organism.

16. The powder of claim 15, wherein the powder comprises one or more of the following features:

a) the entrapped or encapsulated bioactive and/or bioactive precursor is resistant to oxygen degradation compared to the unentrapped or unencapsulated bioactive and/or bioactive precursor;

b) the bioactive and/or bioactive precursor is a fatty acid;

c) an induction period of about 10 to about 300 hours, when measured at 80˚C and a 5 bar initial oxygen pressure;

d) about 5% to about 50% w/w oil;

e) about 10% to about 40% w/w oil;

f) the bioactive and/or bioactive precursor of b) is one or more of:

i) a component of the biomass;

ii) the oil or a component thereof in step ii);

iii) a component added to the oil before the oil is added to the aqueous mixture in step ii);

iv) a component infused in the oil before or during step ii);

v) a component of the further biomass;

vi) is a component added in step i), ii) and iii) of the method; and

vii) the bioactive is i) and ii).

17. A product comprising the powder produced by the method of any one of claims 1 to 11, or the powder of claim 15 or claim 16.

18. The product of claim 17, wherein the product comprises one or more of the following features:

a) entrapped or encapsulated bioactive and/or bioactive precursor in the product is more resistant to degradation compared to the same product comprising unentrapped or unencapsulated bioactive and/or bioactive precursor;

b) is a cream, gel tablet, liquid, pill, capsule, powder or extruded product;

c) is a food, food ingredient, supplement, cosmetic or cosmetic ingredient; and

d) omega-3 polyunsaturated fatty acids.

19. The product of claim 17 or claim 18, wherein the product is selected from:

a) an animal feed;

b) an aquaculture feed;

c) a pharmaceutical composition; and

d) a cosmetic composition.