

CLAIMS:

1. A composition comprising *Pinus pinaster* stem bark extract, papain, and *Aloe vera* extract.
2. A composition comprising a therapeutically effective amount of *Pinus pinaster* stem bark extract, papain, and *Aloe vera* extract.
3. The composition according to claim 1 or claim 2, wherein the *Aloe vera* extract is *Aloe vera* leaf extract.
4. The composition according to claim 2 or claim 3, wherein
the therapeutically effective amount of *Pinus pinaster* stem bark extract corresponds to a daily adult human dosage of from about 60 mg to about 1500 mg *Pinus pinaster* stem bark extract;
the therapeutically effective amount of papain corresponds to a daily adult human dosage of from about 30 mg to about 1200 mg papain; and
the therapeutically effective amount of *Aloe vera* extract corresponds to a daily adult human dosage of from about 15 mg to about 600 mg *Aloe vera* extract.
5. The composition according to any one of claims 2 to 4, wherein
the therapeutically effective amount of *Pinus pinaster* stem bark extract corresponds to a daily adult human dosage of about 260 mg;
the therapeutically effective amount of papain corresponds to a daily adult human dosage of about 240 mg; and
the therapeutically effective amount of *Aloe vera* extract corresponds to a daily adult human dosage of about 175 mg.
6. The composition according to any one of claims 1 to 5, wherein the composition further comprises an acid.
7. The composition according to claim 6, wherein the acid is acetic acid.
8. The composition according to claim 6 or claim 7, wherein the composition comprises acid in a concentration effective to adjust the pH of the composition to between about 3.2 and about 4.2.

9. The composition according to any one of claims 1 to 8, wherein the composition further comprises honey.
10. The composition according to any one of claims 1 to 9, wherein the composition comprises one or more additives selected from the group consisting of: a preservative, a flavouring agent, a salt, and a pigment.
11. The composition according to any one of claims 1 to 10, wherein the composition comprises a salt, and wherein the salt is sodium chloride.
12. The composition according to any one of claims 1 to 11, further comprising an additional component selected from the group consisting of: an omega-3 fatty acid, a phytonutrient, a source of protein, an amino acid, an antioxidant, a vitamin, a mineral, a plant extract, and mixtures thereof.
13. The composition according to any one of claims 1 to 12, wherein the composition is synergistic.
14. The composition according to any one of claims 1 to 13, wherein the composition is adapted for oral administration.
15. The composition according to claim 14, wherein the composition is in a form selected from the group consisting of: a tablet, a capsule, a chewable tablet, a soft gel capsule, a sachet, a powder, granules, a liquid, a syrup, a liquid suspension, an emulsion, a solution, and combinations thereof.
16. The composition according to any one of claims 1 to 14, wherein the composition is an aqueous composition.
17. The composition according to any one of claims 1 to 16, wherein the composition has a pH of about 3.7.
18. The composition according to claim 16 or claim 17, wherein the *Pinus pinaster* stem bark extract is present at a concentration of from about 2 mg/mL to about 10 mg/mL.

19. The composition according to any one of claims 16 to 18, wherein the *Pinus pinaster* stem bark extract is present at a concentration of about 2.6 mg/mL.
20. The composition according to any one of claims 16 to 19, wherein the papain is present at a concentration of from about 1 mg/mL to about 5 mg/mL.
21. The composition according to any one of claims 16 to 20, wherein the papain is present at a concentration of about 2.4 mg/mL.
22. The composition according to any one of claims 16 to 21, wherein the *Aloe vera* extract is present at a concentration of from about 0.5 mg/mL to about 4 mg/mL.
23. The composition according to any one of claims 16 to 22, wherein the *Aloe vera* extract is present at a concentration of about 1.75 mg/mL.
24. The composition according to any one of claims 16 to 23, wherein the composition comprises glacial acetic acid at a concentration of from about 1 mg/mL to about 8 mg/mL.
25. The composition according to claim 24, wherein the glacial acetic acid is present at a concentration of about 2 mg/mL.
26. The composition according to any one of claims 15 to 25, wherein the composition comprises honey at a concentration of from about 50 mg/mL to about 200 mg/mL.
27. The composition according to claim 26, wherein the honey is present at a concentration of about 100 mg/mL.
28. An aqueous composition comprising about 2.6 mg/mL *Pinus pinaster* stem bark extract, about 2.4 mg/mL papain, and about 1.75 mg/mL *Aloe vera* extract.
29. The composition according to claim 28, further comprising about 100 mg/mL honey.
30. The composition according to claim 28 or claim 29, further comprising about 2 mg/mL glacial acetic acid.

31. An aqueous composition comprising:
2.40 mg/mL papain;
2.60 mg/mL *Pinus pinaster* stem bark extract;
1.75 mg/mL *Aloe vera* inner leaf juice;
100.00 mg/mL honey;
2.00 mg/mL glacial acetic acid;
3.00 mg/mL sodium chloride;
400 µg/mL potassium sorbate;
400 µg/mL sodium benzoate;
10.00 mg/mL wildberry flavour UA71225; and
800 µg/mL anthocyanin extract.
32. An aqueous composition comprising papain, *Pinus pinaster* stem bark extract, *Aloe vera* inner leaf juice, honey, glacial acetic acid, sodium chloride, potassium sorbate, sodium benzoate, wildberry flavour UA71225 and anthocyanin extract
in a ratio of
papain : dry *Pinus pinaster* stem bark extract : dry *Aloe vera* inner leaf juice : honey :
glacial acetic acid : sodium chloride : potassium sorbate : sodium benzoate : wildberry
flavour UA71225 : anthocyanin extract
of 2.40 : 2.60 : 1.75 : 100 : 2.00 : 3.00 : 0.40 : 0.40 : 10.00 : 0.80 by weight.
33. An aqueous composition comprising papain, dry *Pinus pinaster* stem bark extract, dry *Aloe vera* inner leaf juice, honey, glacial acetic acid, and sodium chloride
in a ratio of
papain : dry *Pinus pinaster* stem bark extract : dry *Aloe vera* inner leaf juice : honey :
glacial acetic acid : sodium chloride
of 2.40 : 2.60 : 1.75 : 100 : 2.00 : 3.00 by weight.
34. An aqueous composition comprising papain, *Pinus pinaster* stem bark extract, and *Aloe vera* inner leaf juice in a ratio of
papain : dry *Pinus pinaster* stem bark extract : dry *Aloe vera* inner leaf juice
of 2.40 : 2.60 : 1.75 by weight.

35. A method of treating or preventing elevated blood glucose, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
36. A method of preventing or delaying the onset of type 2 diabetes mellitus (T2DM), comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
37. A method of treating or preventing pre-diabetes, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
38. A method of reducing inflammation, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
39. A method of decreasing cytokine-induced inflammation, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
40. A method of decreasing an oxidative stress response, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
41. A method of treating or preventing a disease characterised by elevated levels of cytokine-induced inflammation, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
42. A method of treating or preventing a disease characterised by elevated levels of oxidative stress, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
43. The method of claim 41 or claim 42, wherein the disease is atherosclerosis, liver inflammation associated with type 2 diabetes and obesity, endometriosis, or osteoarthritis.
44. A method of reducing one or more side effects of a diabetes medication selected from the group consisting of metformin, sulfonylureas, meglitinides, thiazolidinediones, DPP-4

inhibitors, GLP-1 receptor agonists, SGLT2 inhibitors, and insulin therapy, the method comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.

45. The method of claim 44, wherein the side effect is abdominal or stomach discomfort, decreased appetite, or diarrhoea.
46. A method of treating or preventing a dysfunction associated with excess blood glucose, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
47. The method of claim 46, wherein the dysfunction is selected from the group consisting of: increased thirst and hunger, frequent urination, fatigue/lethargy, blurry vision, sleepiness, and muscle weakness.
48. The method of any one of claims 35 to 47, wherein the composition is administered in combination with metformin or another blood glucose lowering medication.
49. A method of improving organ function comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
50. A method of lowering blood cholesterol, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
51. The method of claim 50, wherein the blood cholesterol is selected from the group consisting of: low density lipoproteins (LDL), high density lipoproteins (HDL), triglycerides and total cholesterol.
52. A method of treating an autoimmune disease, comprising administering to a subject in need thereof an effective amount of a composition according to any one of claims 1 to 34.
53. The method of claim 52, wherein the autoimmune disease is selected from the group consisting of: lupus, arthritis, psoriasis, and type I diabetes.

54. The method according to any one of claims 35 to 53, wherein the effective amount of the composition corresponds to:
- a daily adult human dosage of from about 60 mg to about 1500 mg *Pinus pinaster* stem bark extract;
 - a daily adult human dosage of from about 30 mg to about 1200 mg papain; and
 - a daily adult human dosage of from about 15 mg to about 600 mg *Aloe vera* extract.
55. The method according to any one of claims 35 to 54, wherein the effective amount of the composition corresponds to:
- a daily adult human dosage of about 260 mg *Pinus pinaster* stem bark extract;
 - a daily adult human dosage of about 240 mg papain; and
 - a daily adult human dosage of about 175 mg *Aloe vera* extract.
56. The method according to claim 54 or claim 55, wherein the daily adult human dosage of *Pinus pinaster* stem bark extract, papain and *Aloe vera* extract is provided to the subject in a single dose.
57. The method according to claim 54 or claim 55, wherein the daily adult human dosage of *Pinus pinaster* stem bark extract, papain and *Aloe vera* extract is provided to the subject in multiple doses.
58. Use of a composition according to any one of claims 1 to 34 for the manufacture of a medicament for:
- treating or preventing elevated blood glucose; or
 - preventing or delaying the onset of type 2 diabetes mellitus (T2DM) ; or
 - treating or preventing pre-diabetes; or
 - reducing inflammation; or
 - decreasing cytokine-induced inflammation ; or
 - decreasing an oxidative stress response; or
 - treating or preventing a disease characterised by elevated levels of cytokine-induced inflammation; or
 - treating or preventing a disease characterised by elevated levels of oxidative stress; or

reducing one or more side effects of a diabetes medication selected from the group consisting of metformin, sulfonylureas, meglitinides, thiazolidinediones, DPP-4 inhibitors, GLP-1 receptor agonists, SGLT2 inhibitors, and insulin therapy; or
treating or preventing a dysfunction associated with excess blood glucose; or
improving organ function; or
lowering blood cholesterol;
in a subject.

59. The method of any one of claims 35 to 57 or the use of claim 58, wherein the subject is selected from the group consisting of the elderly, those with a medical condition of pre-diabetes or at risk of developing pre-diabetes, and combinations thereof.
60. The use of claim 58 or claim 59, wherein the subject is taking metformin or another blood glucose lowering medication.
61. A method of manufacturing an aqueous composition, said method comprising:
combining *Pinus pinaster* stem bark extract, papain, and *Aloe vera* extract in water.
62. The method of claim 61, wherein the method further comprises:
adding an acid.
63. The method of claim 62, wherein the acid is glacial acetic acid.
64. The method of any one of claims 61 to 63, further comprising:
adding honey.