

Claims:

1. A method of preventing, ameliorating or treating an MMP-9 associated condition in a subject, comprising administering to a subject in need thereof a composition comprising 3,6,7-trimethylumazine.
2. The method of claim 1 wherein the MMP-9 associated condition is selected from gastrointestinal inflammatory diseases, gastric ulcers, peptic ulcers, gastritis, MMP-associated inflammatory conditions, inflammatory bowel disease, Crohn's disease, ulcerative colitis, Irritable Bowel Syndrome, digestive diseases, Gastroesophageal Reflux Disease, heartburn, acid reflux, *Helicobacter pylori* infection, mouth ulcers, stomatitis, pharyngitis, gingivitis, esophageal ulcers, neuropsychiatric illnesses, schizophrenia, bipolar mood disorder, multiple sclerosis, neurodegenerative disorders, traumatic brain injury, multiple sclerosis, Alzheimer's disease, cardiovascular diseases, cancer and arthritis.
3. A method of preventing, ameliorating or treating an MMP-9 associated inflammatory condition in a subject, comprising administering to a subject in need thereof a composition comprising 3,6,7-trimethylumazine.
4. The method of claim 3 wherein the MMP-9 associated inflammatory condition is associated with inflammation of the gastrointestinal tract.
5. The method of claim 3 or 4 wherein the MMP-9 associated inflammatory condition is selected from gastrointestinal inflammatory diseases, gastric ulcers, peptic ulcers, gastritis, MMP-associated inflammatory conditions, inflammatory bowel disease, Crohn's disease, ulcerative colitis, Irritable Bowel Syndrome, digestive diseases, Gastroesophageal Reflux Disease, heartburn, acid reflux, *Helicobacter pylori* infection, mouth ulcers, stomatitis, pharyngitis, gingivitis, esophageal ulcers, neuropsychiatric illnesses, schizophrenia, bipolar mood disorder, multiple sclerosis, neurodegenerative disorders, traumatic brain injury, multiple sclerosis, Alzheimer's disease, cardiovascular diseases, cancer and arthritis.
6. A method of preventing, ameliorating or treating inflammation in a subject comprising administering to a subject in need thereof a composition comprising 3,6,7-trimethylumazine.

7. The method of claim 6 wherein the inflammation is associated with the gastrointestinal tract of a subject.
8. The method of claim 6 or 7 wherein the inflammation is associated with conditions selected from: gastrointestinal inflammatory diseases, gastric ulcers, peptic ulcers, gastritis, MMP-associated inflammatory conditions, inflammatory bowel disease, Crohn's disease, ulcerative colitis, Irritable Bowel Syndrome, digestive diseases, Gastroesophageal Reflux Disease, heartburn, acid reflux, *Helicobacter pylori* infection, mouth ulcers, stomatitis, pharyngitis, gingivitis, esophageal ulcers, neuropsychiatric illnesses, schizophrenia, bipolar mood disorder, multiple sclerosis, neurodegenerative disorders, traumatic brain injury, multiple sclerosis, Alzheimer's disease, cardiovascular diseases, cancer and arthritis.
9. The method of any one of the preceding claims wherein the origin of the 3,6,7-trimethylumazine is honey.
10. The method of claim 9 wherein the honey is of a floral origin substantially from: *Leptospermum scoparium*, *Leptospermum polygalifolium*, *Leptospermum subtenue*, and/or combinations thereof.
11. The method of any one claims 1 to 8 wherein the origin of the 3,6,7-trimethylumazine is nectar, roots, fruit, seeds, bark, oil, leaves, wood, stems or other plant material from *Leptospermum*.
12. The method of claim 11 wherein the origin of the 3,6,7-trimethylumazine is nectar, roots, fruit, seeds, bark, oil, leaves, wood, stems or other plant material from a plant selected from: *Leptospermum scoparium*, *Leptospermum polygalifolium*, *Leptospermum subtenue*, and/or combinations thereof.
13. The method of any one of claims 1 to 8 wherein the 3,6,7-trimethylumazine is synthetic.
14. The method of any one of claims 1 to 10 wherein the composition comprising 3,6,7-trimethylumazine comprises honey or a honey extract.
15. The method of any one of the preceding claims wherein the composition comprises a therapeutically effective amount of 3,6,7-trimethylumazine.

16. The method of any one of the preceding claims wherein the composition comprises from about 2.5 µg/mL to about 1000 µg/mL 3,6,7-trimethylumazine.
17. The method of any one of the preceding claims wherein the composition comprises from about 2.5 µg/mL to about 80 µg/mL 3,6,7-trimethylumazine.
18. The method of any one of the preceding claims wherein the composition comprises about 2.5 µg/mL, about 5 µg/mL, about 10 µg/mL, about 20 µg/mL, about 40 µg/mL, about 50 µg/mL, about 60 µg/mL, about 70 µg/mL or about 80 µg/mL 3,6,7-trimethylumazine.
19. The method of any one of claims 1 to 14 wherein the composition comprises from about 5 mg/kg to about 3000 mg/kg 3,6,7-trimethylumazine.
20. The method of any one of claims 1 to 15 and 18 wherein the composition comprises from about 5 mg/kg to about 80 mg/kg 3,6,7-trimethylumazine.
21. The method of claim 120 wherein the composition comprises about 5 mg/kg, about 10 mg/kg, about 15 mg/kg, about 20 mg/kg, about 25 mg/kg, about 30 mg/kg, about 35 mg/kg, about 40 mg/kg, about 45 mg/kg, about 50 mg/kg, about 55 mg/kg, about 60 mg/kg, about 70 mg/kg or about 80 mg/kg of 3,6,7-trimethylumazine.
22. The method of any one of the preceding claims wherein the composition comprising 3,6,7-trimethylumazine is formulated as a liquid formulation, fast moving consumer goods, capsule, tablet, chewable tablets, gels, lotions, powders, suppository, cosmetic formulations, intravenous preparations, intramuscular preparations, subcutaneous preparations, solution, food, beverage, dietary supplement or sprays.
23. The method of any one of claims 1 to 18 wherein the composition comprising 3,6,7-trimethylumazine has a standardised concentration of 3,6,7-trimethylumazine obtained by:
 - selecting a first composition with a known concentration of 3,6,7-trimethylumazine;

- selecting at least one further composition with a known concentration of 3,6,7-trimethylumazine;
- combining the first composition with the second composition to obtain a composition with a standardised 3,6,7-trimethylumazine concentration of from about 5 to about 3000 mg/kg.

24. The method of any one of claims 1 to 18 wherein the composition comprising 3,6,7-trimethylumazine has a standardised concentration of 3,6,7-trimethylumazine obtained by:

- selecting a first composition with a known concentration of 3,6,7-trimethylumazine;
- combining the selected first composition with one or more of:
 - synthetic 3,6,7-trimethylumazine;
 - isolated 3,6,7-trimethylumazine;
 - a honey extract comprising 3,6,7-trimethylumazine; and/or
 - 3,6,7-trimethylumazine derived directly from a plant of the genus *Leptospermum*;

to form a composition with a standardised 3,6,7-trimethylumazine concentration of from about 5 mg/kg to about 3000 mg/kg.

25. A method of making a composition with anti-inflammatory and/or MMP-9 inhibitory activity comprising:

- a. testing a first composition comprising honey for 3,6,7-trimethylumazine concentration;
- b. testing at least one further composition comprising honey for 3,6,7-trimethylumazine concentration;
- c. selecting a composition comprising honey with a 3,6,7-trimethylumazine concentration greater than about 5 mg/kg;
- d. selecting at least one further composition comprising honey with a 3,6,7-trimethylumazine concentration greater than from about 5 mg/kg 3,6,7-trimethylumazine;
- e. combining the selected composition comprising honey to form a honey composition with a 3,6,7-trimethylumazine concentration of at least from about 5 to about 80 mg/kg.

26. The method of claim 24 wherein composition comprising honey is selected if it has

a concentration of 3,6,7-trimethylumazine greater than about 5 mg/kg, about 10 mg/kg, about 15 mg/kg, about 20 mg/kg, about 25 mg/kg, about 30 mg/kg, about 35 mg/kg, about 40 mg/kg, about 45 mg/kg, about 50 mg/kg, about 55 mg/kg, about 60 mg/kg, about 70 mg/kg or about 80 mg/kg.

27. A method of identifying a composition as having anti-inflammatory and/or MMP-9 inhibitory activity comprising:

- a. testing a composition for 3,6,7-trimethylumazine concentration; and
 - i. identifying the composition as having anti-inflammatory and/or MMP-9 inhibitory activity if it contains a 3,6,7-trimethylumazine concentration greater than from about 5 mg/kg; or
 - ii. identifying the composition as not having anti-inflammatory and/or MMP-9 inhibitory activity if it contains a 3,6,7-trimethylumazine concentration lower than from about 5 mg/kg.

28. The method of claim 27 wherein the composition comprises honey.

29. A composition comprising 3,6,7-trimethylumazine for use in any one of the methods as claimed in claims 1 to 24.

30. Use of a composition comprising 3,6,7-trimethylumazine in the manufacture of a medicament for preventing, ameliorating or treating an MMP-9 associated conditions in a subject.

31. Use of a composition comprising 3,6,7-trimethylumazine in the manufacture of a medicament for preventing, ameliorating or treating inflammation.