

CLAIMS

1. An antimicrobial and/or anti-inflammatory composition comprising an extract of *Arthrospira*, and at least one organic acid in an amount of at least about 0.1 wt.% based on the total weight of the composition.
2. The composition of claim 1, wherein the organic acid is selected from the group comprising aromatic carboxylic acids, short chain fatty acids, medium and long chain saturated fatty acids, medium and long chain unsaturated fatty acids, polyphenols, phenolic acids, flavonoids, or a combination thereof.
3. The composition of claim 1 or claim 2, wherein the organic acid is selected from the group comprising benzoic acid, valproic acid, formic acid, acetic acid, propionic acid, butyric acid, isobutyric acid, valeric acid, isovaleric acid, chlorogenic acid, gallic acid, vanillin, salicylic acid, caffeic acid, syringic acid, coumaric acid, ferulic acid, cinnamic acid, quercetin, genistein, kaempferol, lauric acid, palmitic acid, sapienic acid, stearic acid, oleic acid, linoleic acid, gamma linolenic acid, docosadienoic acid or a combination thereof.
4. The composition of any one of the preceding claims, wherein the at least one organic acid is benzoic acid.
5. The composition of claim 4, wherein the amount of benzoic acid is between about 2 wt.% and about 15 wt.% based on the total weight of the composition.
6. The composition of any one of the preceding claims, wherein the composition further comprises titanium dioxide.
7. The composition of claim 6, wherein the amount of titanium dioxide is between about 0.5 wt.% and about 3.0 wt.% based on the total weight of the composition.
8. The composition of any one of the preceding claims, wherein the moisture content of the composition is less than about 20 wt.%.
9. The composition of any one of the preceding claims, wherein the composition is formulated for administration to a mammal by topical administration.
10. The composition of any one of the preceding claims, wherein the composition is in the form of a powder, cream or lotion.

11. A process for preparing an antimicrobial and/or anti-inflammatory composition comprising an extract of *Arthrospira*, and at least one organic acid, comprising the following steps:
- (i) obtaining an extract of *Arthrospira*; and
 - (ii) adding at least one agent to decolorize and/or deodorize the *Arthrospira* extract to provide the antimicrobial and/or anti-inflammatory composition, wherein the addition of the at least one agent produces the organic acid.
12. The process of claim 11, wherein the agent to decolorize and/or deodorize is selected from the group comprising hydrogen peroxide, benzoyl peroxide, valproate peroxide, acetyl peroxide, formyl hydroperoxide, peroxypropionic acid, peroxybutyric acid, or a combination thereof.
13. The process of claim 11 or claim 12, wherein the agent is selected from hydrogen peroxide and benzoyl peroxide.
14. The process of claim 13, which further comprises adding at least one organic acid.
15. A process for preparing an antimicrobial and/or anti-inflammatory composition comprising an extract of *Arthrospira*, and at least one organic acid, comprising the following steps:
- (i) obtaining an extract of *Arthrospira*; and
 - (ii) adding at least one organic acid to the *Arthrospira* extract to provide the antimicrobial and/or anti-inflammatory composition.
16. The process of any one of claims 11 to 15 which further comprises growing and harvesting *Arthrospira*.
17. The process of any one of claims 11 to 16, wherein the *Arthrospira* were/are grown under physiologically stressed conditions.
18. The process of any one of claims 11 to 17 which further comprises rinsing and/or drying the *Arthrospira* extract to provide a dried *Arthrospira* powder.
19. The process of any one of claims 11 to 18 which further comprises the addition of titanium dioxide.

20. The process of any one of claims 11 to 19, further comprising addition of a diluent, wherein the diluent is water.
21. The process of any one of claims 11 to 20, wherein the at least one organic acid is selected from the group comprising aromatic carboxylic acids, short chain fatty acids, medium and long chain saturated fatty acids, medium and long chain unsaturated fatty acids, polyphenols, phenolic acids, flavonoids, or a combination thereof.
22. The process of any one of claims 11 to 21, wherein the at least one organic acid is selected from the group comprising benzoic acid, valproic acid, valproic acid, formic acid, acetic acid, propionic acid, butyric acid, isobutyric acid, valeric acid, isovaleric acid, chlorogenic acid, gallic acid, vanillin, salicylic acid, caffeic acid, syringic acid, coumaric acid, ferulic acid, cinnamic acid, quercetin, genstein, kaempferol, lauric acid, palmitic acid, sapienic acid, stearic acid, oleic acid, linoleic acid, gamma linolenic acid, docosadienoic acid or a combination thereof.
23. The process of any one of claims 11 to 22, wherein the at least one organic acid is benzoic acid.
24. The process of any one of claims 11 to 23, wherein the amount of organic acid in the composition is in an amount between about 0.1 wt.% and about 15 wt.% based on the total weight of the composition.
25. The process of any one of claims 11 to 24, wherein the amount of titanium dioxide is between about 0.5 wt.% and about 3.0 wt.%.
26. The process of any one claims 11 to 25, wherein the amount of the at least one agent to decolorize and/or deodorize is between about 0.5 wt.% and about 5.0 wt.% based on the total weight of the composition.
27. An antimicrobial and/or anti-inflammatory composition prepared by the process of any one of claims 11 to 26.
28. A method of treating or preventing a disease or condition responsive to treatment with an *Arthrospira* extract in a subject, comprising administering to a subject an effective amount of the composition of any one of claims 1 to 10 or the composition prepared by the process according to any one of claims 11 to 26.

29. Use of an extract of *Arthrospira* in the manufacture of a medicament for treating or preventing a disease or condition responsive to treatment with an *Arthrospira* extract, wherein the medicament comprises the composition of any one of claims 1 to 10 or the composition prepared by the process of any one of claims 11 to 26.

30. A composition for use in treating or preventing a disease or condition responsive to treatment with an *Arthrospira* extract, wherein the composition is according to any one of claims 1 to 10 or the composition prepared by the process according to any one of claims 11 to 26.

31. The method of claim 28, the use of 29 or composition of claim 30, wherein the disease or condition is onychomycosis, a fungal infection, a bacterial infection, a viral infection, inflammation, acne, rosacea, a dermatological disorder, hidradentitis, psoriasis, actinic keratosis, atopic dermatitis, pruritis, radiation-induced dermatitis, chemotherapy-induced dermatitis, paronychia or alopecia.