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Amended Claims

1. A method for preparing a fine powder of a polymannan extract comprising the steps of:

weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding ~~an excess volume of the supernatant solution~~ a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding ~~an additional quantity~~ a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a ~~very fine~~ desired texture.

2. The method of claim 1, further comprising the step of weighing, labeling, and storing the fine powder of the polymannan extract in a container.

3. The method of claim 1, wherein the freeze-dried aloe powder is derived from an Aloe species selected from the group consisting of *Aloe vera, Aloe arborescens, Aloe aristata, Aloe dichotoma, Aloe nyeriensis, Aloe variegate, Aloe barbadensis,* and *Aloe wildii.*

4. The method of claim 1, wherein the organic solvent is selected from the group consisting of methanol, ethanol, isopropyl alcohol, and propanol.

5. The method of claim 1, wherein the freeze-dried aloe powder comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

6. The method of claim 5, wherein the aloe polysaccharides further comprise simple sugars, selected from the group consisting of glucose, mannose, arabinose, and galactose.

7. The method of claim 5, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to [[over]] 10,000,000 Daltons.

8. The method of claim 1, wherein the freeze-dried aloe powder has at least 25% of aloe polysaccharides.

9. The method of claim 1, wherein the freeze-dried aloe powder has from 25% aloe polysaccharides~~, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and~~ to 95% aloe polysaccharides.

10. The method of claim 1, wherein the freeze dried aloe powder comprises at least 14% of aloe polysaccharides having a molecular weight of 66,000 Daltons.

11. The method of claim 1, wherein the freeze dried aloe powder comprises at least 9% of aloe polysaccharides having a molecular weight of 480,000 Daltons.

12. The method of claim 1, wherein the freeze dried aloe powder comprises at least 3.5% of aloe polysaccharides having a molecular weight of 1,000,000 Daltons.

13. The method of claim 1, wherein the freeze dried aloe powder comprises at least 2.4% of aloe polysaccharides having a molecular weight of 2,000,000 Daltons.

14. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 2,000,000 Daltons in the freeze dried aloe powder ranges from 1.32%-6.36%.

15. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 1,000,000 Daltons in the freeze dried aloe powder ranges from 2.55%-3.89%.

16. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 480,000 Daltons in the freeze dried aloe powder ranges from 63.85%-73.36%.

17. The ~~composition~~ method of claim 1, wherein the freeze dried aloe powder may contain one or more residual small molecular weight species, selected from the group consisting of glucose, organic acids, lactic acid, malic [[acids]] acid, citric [[acids]] acid, and aspartic acid.

18. The method of claim 17, wherein the one or more residual small molecular weight species are present in amounts ranging from 14%-24% by weight.

19. The method of claim 1, wherein the fine powder of the polymannan extract is used on the preparation of a pharmaceutical composition.

20. The method of claim 19, wherein the pharmaceutical composition is used in the treatment of one or more malignancies selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer, and for the treatment of one or more immune disorders.

21. An injectable formulation of a polymannan extract comprising:

a specified quantity of very fine polymannan extract dissolved in deionized water; and

one or more pharmaceutical preservatives, wherein the formulation is made by the method of:

weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a ~~very fine~~ desired texture.

22. The composition of claim 21, wherein the injectable formulation is sterile.

23. The composition of claim 21, wherein the one or more pharmaceutical preservatives are selected from the group consisting of parabens, benzoic acid and their salts, mercurials, quarternary ammonium salts, benzyl alcohol and other related alcohols, and phenols.

24. The composition of claim 21, wherein the preservative is benzyl alcohol.

25. The composition of claim 21, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

26. The composition of claim 25, wherein the aloe polysaccharides further comprise simple sugars, selected from the group consisting of glucose, mannose, arabinose, and galactose.

27. The composition of claim 25, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to [[over]] 10,000,000 Daltons.

28. The composition of claim 21, wherein the polymannan extract has at least 25% of aloe polysaccharides.

29. The composition of claim 21, wherein the polymannan extract has 25%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 95% aloe polysaccharides.

30. The composition of claim 21, wherein the polymannan extract comprises at least 14% of aloe polysaccharides having a molecular weight of 66,000 Daltons.

31. The composition of claim 21, wherein the polymannan extract comprises at least 9% of aloe polysaccharides having a molecular weight of 480,000 Daltons.

32. The composition of claim 21, wherein the polymannan extract comprises at least 3.5% of aloe polysaccharides having a molecular weight of 1,000,000 Daltons.

33. The composition of claim 21, wherein the polymannan extract comprises at least 2.4% of aloe polysaccharides having a molecular weight of 2,000,000 Daltons.

34. The composition of claim 21, wherein the composition is used in the treatment of one or more cancers selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer.

35. The composition of claim 21, wherein the injectable formulation is used for immunomodulation, immunostimulation, or for the treatment of an individual with a compromised immune system or an immune disease.

36. The composition of claim 21, wherein the composition causes a 75-80% increase in one or more natural killer (NK) cells.

37. A medicament for the ~~A method for the~~ treatment of one or more cancers, wherein the one or more cancers are selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer~~, comprising the steps of:~~

~~identifying an individual in need of treatment against the one or more cancers; and~~

~~injecting~~ wherein the medicament comprises a sterile injectable polymannan extract formulation two to three times in a week in a dosage sufficient to treat the one or more cancers, wherein the sterile injectable polymannan extract formulation comprises a specified quantity of very fine polymannan extract dissolved in deionized water; and one or more pharmaceutical

preservatives, wherein the sterile injectable polymannan extract formulation is made by the method of:

weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a ~~very fine~~ desired texture.

38. The medicament ~~method~~ of claim 37 further comprising the steps of:

withdrawing blood samples from the individual at one or more specified intervals; and

measuring a level of a caspase 3 protein in the blood and comparing the level obtained with the level prior to the injection, wherein an increased level in caspase 3 is directly related to an increased level of apoptosis of the one or more cancer cells.

39. The medicament ~~method~~ of claim 37, wherein the wherein the dosage of the sterile injectable polymannan extract formulation is dependent on a weight, an age, an ethnicity, and a gender of the individual.

40. The medicament ~~method~~ of claim 37, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

41. The medicament ~~method~~ of claim 40, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to [[over]] 10,000,000 Daltons.

42. The medicament ~~method~~ of claim 37, wherein the polymannan extract has at least 25% of aloe polysaccharides.

43. The medicament ~~method~~ of claim 37, wherein the polymannan extract causes a 75-80% increase in one or more natural killer (NK) cells.

44. A medicament for ~~method of~~ immunomodulation or immunostimulation in an individual with a compromised immune system or an immune disease ~~comprising the steps of~~:

~~identifying the individual with the compromised immune system or an immune disease and in need of immunomodulation or immunostimulation;~~

~~administering intravenously~~ wherein the medicament comprises a specified dosage of a sterile injectable polymannan extract formulation, wherein the sterile injectable polymannan extract formulation comprises a specified quantity of very fine polymannan extract dissolved in deionized water; and one or more pharmaceutical preservatives, wherein the dosage of the sterile injectable polymannan extract formulation is dependent on a weight, an age, an ethnicity, and a gender of the individual, wherein the formulation is made by: weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a ~~very fine~~ desired texture.

~~withdrawing blood samples from the individual at one or more specified intervals; and~~

~~measuring a level of a tumor necrosis factor-alpha (TNFα) in the blood and comparing the level obtained with the level prior to the injection; wherein an increased level in the TNFα indicates immunomodulation or immunostimulation.~~

45. The medicament ~~method~~ of claim 44, wherein the immune disease is an immune related neoplasm.

46. The medicament ~~method~~ of claim 44, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

47. The medicament ~~method~~ of claim 44, wherein the polymannan extract causes a 75-80% increase in one or more natural killer (NK) cells.

48. The medicament ~~method~~ of claim 44, wherein the polymannan extract has at least 25% of aloe polysaccharides.

Claims

1. A method for preparing a fine powder of a polymannan extract comprising the steps of:

weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a desired texture.

2. The method of claim 1, further comprising the step of weighing, labeling, and storing the fine powder of the polymannan extract in a container.

3. The method of claim 1, wherein the freeze-dried aloe powder is derived from an Aloe species selected from the group consisting of *Aloe vera, Aloe arborescens, Aloe aristata, Aloe dichotoma, Aloe nyeriensis, Aloe variegate, Aloe barbadensis,* and *Aloe wildii.*

4. The method of claim 1, wherein the organic solvent is selected from the group consisting of methanol, ethanol, isopropyl alcohol, and propanol.

5. The method of claim 1, wherein the freeze-dried aloe powder comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

6. The method of claim 5, wherein the aloe polysaccharides further comprise simple sugars, selected from the group consisting of glucose, mannose, arabinose, and galactose.

7. The method of claim 5, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to 10,000,000 Daltons.

8. The method of claim 1, wherein the freeze-dried aloe powder has at least 25% of aloe polysaccharides.

9. The method of claim 1, wherein the freeze-dried aloe powder has from 25% aloe polysaccharides to 95% aloe polysaccharides.

10. The method of claim 1, wherein the freeze dried aloe powder comprises at least 14% of aloe polysaccharides having a molecular weight of 66,000 Daltons.

11. The method of claim 1, wherein the freeze dried aloe powder comprises at least 9% of aloe polysaccharides having a molecular weight of 480,000 Daltons.

12. The method of claim 1, wherein the freeze dried aloe powder comprises at least 3.5% of aloe polysaccharides having a molecular weight of 1,000,000 Daltons.

13. The method of claim 1, wherein the freeze dried aloe powder comprises at least 2.4% of aloe polysaccharides having a molecular weight of 2,000,000 Daltons.

14. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 2,000,000 Daltons in the freeze dried aloe powder ranges from 1.32%-6.36%.

15. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 1,000,000 Daltons in the freeze dried aloe powder ranges from 2.55%-3.89%.

16. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 480,000 Daltons in the freeze dried aloe powder ranges from 63.85%-73.36%.

17. The method of claim 1, wherein the freeze dried aloe powder may contain one or more residual small molecular weight species, selected from the group consisting of glucose, organic acids, lactic acid, malic acid, citric acid, and aspartic acid.

18. The method of claim 17, wherein the one or more residual small molecular weight species are present in amounts ranging from 14%-24% by weight.

19. The method of claim 1, wherein the fine powder of the polymannan extract is used on the preparation of a pharmaceutical composition.

20. The method of claim 19, wherein the pharmaceutical composition is used in the treatment of one or more malignancies selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer, and for the treatment of one or more immune disorders.

21. An injectable formulation of a polymannan extract comprising:

a specified quantity of very fine polymannan extract dissolved in deionized water; and

one or more pharmaceutical preservatives, wherein the formulation is made by the method of:

weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a desired texture.

22. The composition of claim 21, wherein the injectable formulation is sterile.

23. The composition of claim 21, wherein the one or more pharmaceutical preservatives are selected from the group consisting of parabens, benzoic acid and their salts, mercurials, quarternary ammonium salts, benzyl alcohol and other related alcohols, and phenols.

24. The composition of claim 21, wherein the preservative is benzyl alcohol.

25. The composition of claim 21, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

26. The composition of claim 25, wherein the aloe polysaccharides further comprise simple sugars, selected from the group consisting of glucose, mannose, arabinose, and galactose.

27. The composition of claim 25, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to 10,000,000 Daltons.

28. The composition of claim 21, wherein the polymannan extract has at least 25% of aloe polysaccharides.

29. The composition of claim 21, wherein the polymannan extract has 25%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 95% aloe polysaccharides.

30. The composition of claim 21, wherein the polymannan extract comprises at least 14% of aloe polysaccharides having a molecular weight of 66,000 Daltons.

31. The composition of claim 21, wherein the polymannan extract comprises at least 9% of aloe polysaccharides having a molecular weight of 480,000 Daltons.

32. The composition of claim 21, wherein the polymannan extract comprises at least 3.5% of aloe polysaccharides having a molecular weight of 1,000,000 Daltons.

33. The composition of claim 21, wherein the polymannan extract comprises at least 2.4% of aloe polysaccharides having a molecular weight of 2,000,000 Daltons.

34. The composition of claim 21, wherein the composition is used in the treatment of one or more cancers selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer.

35. The composition of claim 21, wherein the injectable formulation is used for immunomodulation, immunostimulation, or for the treatment of an individual with a compromised immune system or an immune disease.

36. The composition of claim 21, wherein the composition causes a 75-80% increase in one or more natural killer (NK) cells.

37. A medicament for the treatment of one or more cancers, wherein the one or more cancers are selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer

wherein the medicament comprises a sterile injectable polymannan extract formulation two to three times in a week in a dosage sufficient to treat the one or more cancers, wherein the sterile injectable polymannan extract formulation comprises a specified quantity of very fine polymannan extract dissolved in deionized water; and one or more pharmaceutical preservatives, wherein the sterile injectable polymannan extract formulation is made by the method of:

weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a desired texture.

38. The medicament of claim 37 further comprising the steps of:

withdrawing blood samples from the individual at one or more specified intervals; and

measuring a level of a caspase 3 protein in the blood and comparing the level obtained with the level prior to the injection, wherein an increased level in caspase 3 is directly related to an increased level of apoptosis of the one or more cancer cells.

39. The medicament of claim 37, wherein the wherein the dosage of the sterile injectable polymannan extract formulation is dependent on a weight, an age, an ethnicity, and a gender of the individual.

40. The medicament of claim 37, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

41. The medicament of claim 40, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to 10,000,000 Daltons.

42. The medicament of claim 37, wherein the polymannan extract has at least 25% of aloe polysaccharides.

43. The medicament of claim 37, wherein the polymannan extract causes a 75-80% increase in one or more natural killer (NK) cells.

44. A medicament for immunomodulation or immunostimulation in an individual with a compromised immune system or an immune disease

wherein the medicament comprises a specified dosage of a sterile injectable polymannan extract formulation, wherein the sterile injectable polymannan extract formulation comprises a specified quantity of very fine polymannan extract dissolved in deionized water; and one or more pharmaceutical preservatives, wherein the dosage of the sterile injectable polymannan extract formulation is dependent on a weight, an age, an ethnicity, and a gender of the individual, wherein the formulation is made by: weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding a first volume of an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant solution from the first mixture and adding a second volume of the organic solvent to the specified volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in the second mixture;

adding a third volume of the organic solvent to the first mixture if any precipitate is observed in second mixture;

decanting the supernatant of the first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in the second mixture;

filtering the precipitate from the first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a desired texture.

45. The medicament of claim 44, wherein the immune disease is an immune related neoplasm.

46. The medicament of claim 44, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

47. The medicament of claim 44, wherein the polymannan extract causes a 75-80% increase in one or more natural killer (NK) cells.

48. The medicament of claim 44, wherein the polymannan extract has at least 25% of aloe polysaccharides.

CLAIMS:

1. A method for preparing a fine powder of a polymannan extract comprising the steps of:

weighing a specified quantity of a freeze-dried aloe powder, wherein the quantity is corrected for a moisture content;

dissolving the freeze-dried aloe powder in deionized water to form a solution;

adding an organic solvent to the solution to form a first mixture; wherein the organic solvent to the deionized water ratio is at least 2.5:1;

allowing the first mixture to settle for at least 8 hours;

withdrawing a specified volume of a supernatant from the first mixture and adding an excess volume of the supernatant solution to form a second mixture;

centrifuging the second mixture;

observing for a presence of a precipitate in second mixture;

adding an additional quantity of the organic solvent to first mixture if any precipitate is observed in second mixture;

decanting the supernatant of first mixture by siphoning, wherein the decantation is done only if no precipitate is observed in second mixture;

filtering the precipitate from first mixture by using a filter paper and a suction funnel under vacuum;

recovering the powder of the polymannan extract from the suction funnel by scraping;

placing the powder of the polymannan extract in a capped lyophilization flask in a freezer for at least 8 hours;

lyophilizing the frozen powder of the polymannan extract in a lyophilizer; and

grinding the lyophilized powder of the polymannan extract in a grinder to a very fine texture.

2. The method of claim 1, further comprising the step of weighing, labeling, and storing the fine powder of the polymannan extract in a container.

3. The method of claim 1, wherein the freeze-dried aloe powder is derived from an Aloe species selected from the group consisting of *Aloe vera, Aloe arborescens, Aloe aristata, Aloe dichotoma, Aloe nyeriensis, Aloe variegate, Aloe barbadensis, and Aloe wildii.*

4. The method of claim 1, wherein the organic solvent is selected from the group consiting of methanol, ethanol, isopropyl alcohol, and propanol.

5. The method of claim 1, wherein the freeze-dried aloe powder comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

6. The method of claim 5, wherein the aloe polysaccharides further comprise simple sugars, selected from the group consisting of glucose, mannose, arabinose, and galactose.

7. The method of claim 5, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to over 10,000,000 Daltons.

8. The method of claim 1, wherein the freeze-dried aloe powder has at least 25% of aloe polysaccharides.

9. The method of claim 1, wherein the freeze-dried aloe powder has 25%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 95% aloe polysaccharides.

10. The method of claim 1, wherein the freeze dried aloe powder comprises at least 14% of aloe polysaccharides having a molecular weight of 66,000 Daltons.

11. The method of claim 1, wherein the freeze dried aloe powder comprises at least 9% of aloe polysaccharides having a molecular weight of 480,000 Daltons.

12. The method of claim 1, wherein the freeze dried aloe powder comprises at least 3.5% of aloe polysaccharides having a molecular weight of 1,000,000 Daltons.

13. The method of claim 1, wherein the freeze dried aloe powder comprises at least 2.4% of aloe polysaccharides having a molecular weight of 2,000,000 Daltons.

14. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 2,000,000 Daltons in the freeze dried aloe powder ranges from 1.32%-6.36%.

15. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 1,000,000 Daltons in the freeze dried aloe powder ranges from 2.55%-3.89%.

16. The method of claim 1, wherein the amount of aloe polysaccharides having a molecular weight of 480,000 Daltons in the freeze dried aloe powder ranges from 63.85%-73.36%.

17. The composition of claim 1, wherein the freeze dried aloe powder may contain one or more residual small molecular weight species, selected from the group consisting of glucose, organic acids, lactic acid, malic acids, citric acids, and aspartic acid.

18. The method of claim 17, wherein the one or more residual small molecular weight species are present in amounts ranging from 14%-24%.

19. The method of claim 1, wherein the fine powder of the polymannan extract is used on the preparation of a pharmaceutical composition.

20. The method of claim 19, wherein the pharmaceutical composition is used in the treatment of one or more malignacies selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer, and for the treatment of one or more immune disorders.

21. An injectable formulation of a polymannan extract comprising:

a specified quantity of very fine polymannan extract dissolved in deionized water; and

one or more pharmaceutical preservatives.

22. The composition of claim 21, wherein the injectable formulation is sterile.

23. The composition of claim 21, wherein the one or more pharmaceutical preservatives are selected from the group consisting of parabens, benzoic acid and their salts, mercurials, quarternary ammonium salts, benzyl alcohol and other related alcohols, and phenols.

24. The composition of claim 21, wherein the preservative is benzyl alcohol.

25. The composition of claim 21, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

26. The composition of claim 25, wherein the aloe polysaccharides further comprise simple sugars, selected from the group consisting of glucose, mannose, arabinose, and galactose.

27. The composition of claim 25, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to over 10,000,000 Daltons.

28. The composition of claim 21, wherein the polymannan extract has at least 25% of aloe polysaccharides.

29. The composition of claim 21, wherein the polymannan extract has 25%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 95% aloe polysaccharides.

30. The composition of claim 21, wherein the polymannan extract comprises at least 14% of aloe polysaccharides having a molecular weight of 66,000 Daltons.

31. The composition of claim 21, wherein the polymannan extract comprises at least 9% of aloe polysaccharides having a molecular weight of 480,000 Daltons.

32. The composition of claim 21, wherein the polymannan extract comprises at least 3.5% of aloe polysaccharides having a molecular weight of 1,000,000 Daltons.

33. The composition of claim 21, wherein the polymannan extract comprises at least 2.4% of aloe polysaccharides having a molecular weight of 2,000,000 Daltons.

34. The composition of claim 21, wherein the composition is used in the treatment of one or more cancers selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer.

35. The composition of claim 21, wherein the injectable formulation is used for immunomodulation, immunostimulation, or for the treatment of an individual with a compromised immune system or an immune disease.

36. The composition of claim 21, wherein the composition causes a 75-80% increase in one or more natural killer (NK) cells.

37. A method for the treatment of one or more cancers, wherein the one or more cancers are selected from the group consisting of leukemias and lymphomas, prostate cancer, breast cancer, and colon cancer, comprising the steps of:

identifying an individual in need of treatment against the one or more cancers; and

injecting a sterile injectable polymannan extract formulation two to three times in a week in a dosage sufficient to treat the one or more cancers, wherein the sterile injectable polymannan extract formulation comprises a specified quantity of very fine polymannan extract dissolved in deionized water; and one or more pharmaceutical preservatives.

38. The method of claim 37 further comprising the steps of:

withdrawing blood samples from the individual at one or more specified intervals; and

measuring a level of a caspase 3 protein in the blood and comparing the level obtained with the level prior to the injection, wherein an increased level in caspase 3 is directly related to an increased level of apoptosis of the one or more cancer cells.

39. The method of claim 37, wherein the wherein the dosage of the sterile injectable polymannan extract formulation is dependent on a weight, an age, an ethnicity, and a gender of the individual.

40. The method of claim 37, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

41. The method of claim 40, wherein the aloe polysaccharides have a molecular weight ranging from 11,500 Daltons to over 10,000,000 Daltons.

42. The method of claim 37, wherein the polymannan extract has at least 25% of aloe polysaccharides.

43. The method of claim 37, wherein the polymannan extract causes a 75-80% increase in one or more natural killer (NK) cells.

44. A method of immunomodulation or immunostimulation in an individual with a compromised immune system or an immune disease comprising the steps of:

identifying the individual with the compromised immune system or an immune disease and in need of immunomodulation or immunostimulation;

administering intravenously a specified dosage of a sterile injectable polymannan extract formulation, wherein the sterile injectable polymannan extract formulation comprises a specified quantity of very fine polymannan extract dissolved in deionized water; and one or more pharmaceutical preservatives, wherein the dosage of the sterile injectable polymannan extract formulation is dependent on a weight, an age, an ethnicity, and a gender of the individual;

withdrawing blood samples from the individual at one or more specified intervals; and

measuring a level of a tumor necrosis factor-alpha (TNFα) in the blood and comparing the level obtained with the level prior to the injection; wherein an increased level in the TNFα indicates immunomodulation or immunostimulation.

45. The method of claim 44, wherein the immune disease is an immune related neoplasm.

46. The method of claim 44, wherein the polymannan extract comprises aloe polysaccharides, wherein the aloe polysaccharides comprise one or more small chain, medium chain, large chain, very-large chain polysaccharides, or any combinations thereof.

47. The method of claim 44, wherein the polymannan extract causes a 75-80% increase in one or more natural killer (NK) cells.

48. The method of claim 44, wherein the polymannan extract has at least 25% of aloe polysaccharides.