## CLAIMS

We claim:

1. An oral care composition that alleviates dry mouth comprising a dry mouth alleviating component, wherein the dry mouth alleviating component comprises an extract of *Arialaceae* in an amount of from 0.15 to 0.75 wt% of the overall composition, and an orally acceptable vehicle, wherein the vehicle includes a water-phase with humectant wherein the humectant comprises propylene glycol.

2. The oral care composition of claim 1, wherein the extract of *Arialaceae* is an extract of *Panax ginseng*.

3. The oral care composition of claim 2, wherein the extract of *Panax ginseng* is present in an amount selected from the group consisting of from 0.15% to 0.75% and 0.5%.

4. The oral care composition of claim 2, wherein the *Panax ginseng* extract is present in the saliva at concentrations selected from the group consisting of from 10 ppm to 50 ppm, from 17 ppm to 47 ppm, from 25 ppm to 40 ppm and 33 ppm.

5. The oral care composition of any of claims 1-4, wherein the composition contains an amount of acetylcholine, pilocarpine, muscarine, arecoline, carbachol or bethanecol selected from the group consisting of not more that 0.01%; not more than 0.001%; not more than 0.0001%; and 0%.

6. The oral care composition of any of claims 1-5, wherein the composition optionally further comprises other agent for increasing salivation, alleviating dry mouth or the sensations of dry mouth which is not an extract of *Arialaceae*, and a fluoride ion source.

7. The oral care composition of claim 2, wherein the extract of *Panax ginseng* is further extracted with water and ethyl acetate with the water extract being fractionated via HPLC and is present in a concentration selected from the group consisting of 1 μg/mL – 1000 μg/mL, 5 μg/mL – 500 μg/mL, 8 μg/mL – 120 μg/mL, 8 μg/mL – 12 μg/mL; and 80 μg/mL – 120 μg/mL.

8. The oral care composition of claim 7, wherein the composition results in an increase selected from the group consisting of 50% - 150% of the % increase in RFU (relative fluorescence unit) in a calcium mobilization assay for determining agonist activity of the human M3 receptor relative to the $EC_{50}$ of acetylcholine; 60% - 125% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine; and 75% - 110% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine.

9. The oral care composition of any one of claims 1-8, wherein the composition is fluoride free.

10. The oral care composition of any one of claims 1-9, wherein the extract of *Arialaceae* contains an oligosaccharide.

11. Use of an oral care composition of claim 1 in the manufacture of a medicament for treating dry mouth.

12. The use of claim 11, wherein the extract of *Arialaceae* is an extract of *Panax ginseng*.

13. The use of claim 12, wherein the extract of *Panax ginseng* is present in an amount selected from the group consisting of from 0.15% to 0.75% and 0.5%.

14. The use of any one of claims 12-13, wherein the *Panax ginseng* extract is present in the saliva at concentrations selected from the group consisting of from 10 ppm to 50 ppm, from 17 ppm to 47 ppm, from 25 ppm to 40 ppm and 33 ppm.

15. The use of any one of claims 11-14 , wherein the composition contains an amount of acetylcholine, pilocarpine, muscarine, arecoline, carbachol or bethanecol selected from the group consisting of not more that 0.01%, not more than 0.001%, not more than 0.0001% and 0%.

16. The use of any one of claims 11-15, wherein the composition optionally further comprises other agent for increasing salivation, alleviating dry mouth or the sensations of dry mouth which is not an extract of *Arialaceae,* and a fluoride ion source.

17. The use of any one of claims 12-16, wherein the extract of *Panax ginseng* is further extracted with water and ethyl acetate with the water extract being fractionated via HPLC and is present in a concentration selected from the group consisting of 1 μg/mL – 1000 μg/mL, 5 μg/mL – 500 μg/mL, 8 μg/mL – 120 μg/mL, 8 μg/mL – 12 μg/mL; and 80 μg/mL – 120 μg/mL.

18. The use of claim 17, wherein the composition results in an increase selected from the group consisting of 50% - 150% of the % increase in RFU (relative fluorescence unit) in a calcium mobilization assay for determining agonist activity of the human M3 receptor relative to the $EC_{50}$ of acetylcholine; 60% - 125% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine; and 75% - 110% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine.

19. The use of any one of claims 11-18 wherein the composition is fluoride free.

20. The use of any one of claims 11-19, wherein the extract of *Arialaceae* contains an oligosaccharide.

## CLAIMS

We claim:

1. An oral care composition that alleviates dry mouth comprising a dry mouth alleviating component, wherein the dry mouth alleviating component comprises an extract of *Arialaceae* in an amount of from 0.15 to 0.75 wt% of the overall composition, and an orally acceptable vehicle, wherein the vehicle includes a water-phase with humectant wherein the humectant comprises propylene glycol.

2. The oral care composition of claim 1, wherein the extract of *Arialaceae* is an extract of *Panax ginseng*.

3. The oral care composition of claim 2, wherein the extract of *Panax ginseng* is present in an amount selected from the group consisting of from 0.15% to 0.75% and 0.5%.

4. The oral care composition of claim 2, wherein the *Panax ginseng* extract is present in the saliva at concentrations selected from the group consisting of from 10 ppm to 50 ppm, from 17 ppm to 47 ppm, from 25 ppm to 40 ppm and 33 ppm.

5. The oral care composition of any of claims 1-4, wherein the composition contains an amount of acetylcholine, pilocarpine, muscarine, arecoline, carbachol or bethanecol selected from the group consisting of not more that 0.01%; not more than 0.001%; not more than 0.0001%; and 0%.

6. The oral care composition of any of claims 1-5, wherein the composition optionally further comprises other agent for increasing salivation, alleviating dry mouth or the sensations of dry mouth which is not an extract of *Arialaceae*, and a fluoride ion source.

7. The oral care composition of claim 2, wherein the extract of *Panax ginseng* is further extracted with water and ethyl acetate with the water extract being fractionated via HPLC and is present in a concentration selected from the group consisting of 1 μg/mL – 1000 μg/mL, 5 μg/mL – 500 μg/mL, 8 μg/mL – 120 μg/mL, 8 μg/mL – 12 μg/mL; and 80 μg/mL – 120 μg/ L.



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8. The oral care composition of claim 7, wherein the composition results in an increase selected from the group consisting of 50% - 150% of the % increase in RFU (relative fluorescence unit) in a calcium mobilization assay for determining agonist activity of the human M3 receptor relative to the $EC_{50}$ of acetylcholine; 60% - 125% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine; and 75% - 110% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine.

9. The oral care composition of any one of claims 1-8, wherein the composition is fluoride free.

10. The oral care composition of any one of claims 1-9, wherein the extract of *Arialaceae* contains an oligosaccharide.

11. A method for treating dry mouth comprising administering to a subject with dry mouth an effective dosage unit of an oral care composition comprising a dry mouth component, whereby the dry mouth comprises the composition of claim 1.

12. The method of claim 11, wherein the extract of *Arialaceae* is an extract of *Panax ginseng*.

13. The method of claim 12, wherein the extract of *Panax ginseng* is present in an amount selected from the group consisting of from 0.15% to 0.75% and 0.5%.

14. The method of any one of claims 12-13, wherein the *Panax ginseng* extract is present in the saliva at concentrations selected from the group consisting of from 10 ppm to 50 ppm, from 17 ppm to 47 ppm, from 25 ppm to 40 ppm and 33 ppm.

15. The method of any one of claims 11-14, wherein the composition contains an amount of acetylcholine, pilocarpine, muscarine, arecoline, carbachol or bethanecol selected from the group consisting of not more that 0.01%, not more than 0.001%, not more than 0.0001% and 0%.



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16. The method of any one of claims 11-15, wherein the composition optionally further comprises other agent for increasing salivation, alleviating dry mouth or the sensations of dry mouth which is not an extract of *Arialaceae*, and a fluoride ion source.

17. The method of any one of claims 12-16, wherein the extract of *Panax ginseng* is further extracted with water and ethyl acetate with the water extract being fractionated via HPLC and is present in a concentration selected from the group consisting of 1 μg/mL – 1000 μg/mL, 5 μg/mL – 500 μg/mL, 8 μg/mL – 120 μg/mL, 8 μg/mL – 12 μg/mL; and 80 μg/mL – 120 μg/mL.

18. The method of claim 17, wherein the composition results in an increase selected from the group consisting of 50% - 150% of the % increase in RFU (relative fluorescence unit) in a calcium mobilization assay for determining agonist activity of the human M3 receptor relative to the $EC_{50}$ of acetylcholine; 60% - 125% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine; and 75% - 110% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine.

19. The method of any one of claims 11-18 wherein the composition is fluoride free.

20. The method of any one of claims 11-19, wherein the extract of *Arialaceae* contains an oligosaccharide.

21. An oral care composition that alleviates dry mouth comprising a dry mouth alleviating component, wherein the dry mouth alleviating component comprises an extract of *Zingiberaceae, Lamiaceae, Fabaceae, Solanaceae, Punicaceae, Asteraceae* or mixtures thereof and an orally acceptable vehicle.

22. The oral care composition of claim 21, wherein the extract of *Zingiberaceae* is an extract of *Zingiber officinale*, the extract of *Lamiaceae* is an extract of *Prunella vulgaris* L., the extract of *Fabaceae* is an extract of *Glycyrrhiza uralensis*, the extract of *Solanaceae* is an extract of *Lycium chinense mill* L., the extract of *Punicaceae* is an extract of *Punica granatum* L., the extract of *Asteraceae* is an extract *Acmella oleracea*.



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23. The oral care composition of claim 22, wherein

the extract *Prunella vulgaris* L. or *Glycyrrhiza uralensis* L. is present in an amount selected from the group consisting of from 0.05% to 1.00%, from 0.15% to 0.75% and 0.5%;

the extract *Punica granatum* L. is present in an amount selected from the group consisting of from 0.075% to 1.00%, from 0.08% to 0.75% and 0.25%;

the extract *Lycium chinense mill* L. extract is present in an amount selected from the group consisting of less than 0.75%, from 0.01% to 0.10%, from 0.03% to 0.08% and preferably 0.05%;

the extract *Zingiber officinale* is present in an amount selected from the group consisting of from 0.0005% to 0.010%, from 0.001% to 0.005% and 0.005%; and

the extract of *Asteraceae* is *Acmella oleracea* (para cress) extract present in an amount selected from the group consisting of greater than 0.5%, from 0.5% to 2.0%, from 0.6% to 1.50% and 1%.

24. The oral care composition of claim 22, wherein

the *Prunella vulgaris* L. or *Glycyrrhiza uralensis* L. extract is present in the saliva at concentrations selected from the group consisting of from 10 ppm to 50 ppm, from 17 ppm to 47 ppm, from 25 ppm to 40 ppm and 33 ppm;

the *Punica granatum* L. extract is present in the saliva at concentrations selected from the group consisting of from 5 ppm to 50 ppm; from 5 ppm to 33 ppm; from 7 ppm to 33 ppm; from 10 ppm to 25 ppm; and 17 ppm;

the *Zingiber officinale* extract is present in the saliva at concentrations selected from the group consisting of from 0.1 ppm to 2 ppm; from 0.2 ppm to 1.7 ppm; from 0.2 ppm to 0.7 ppm; and 0.3 ppm;

the *Lycium chinense mill* L. extract is present in the saliva at concentrations selected from the group consisting of less than 5 ppm; from 1.7 ppm to 5 ppm; from 2.5 ppm to 4 ppm; and 3.3 ppm; and

the *Acmella oleracea* (para cress) extract is present in the saliva at concentrations selected from the group consisting of greater than 40 ppm; from 40 ppm to 100 ppm; from 50 ppm to 80 ppm; and 60 ppm.



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25. The oral care composition of claim 21, wherein the extract of *Zingiber officinale*, *Prunella vulgaris* L., *Glycyrrhiza uralensis*, *Lycium chinense mill* L., *Punica granatum* L., *Acmella oleracea* or mixtures thereof is further extracted with water and ethyl acetate with the water extract being fractionated via HPLC and is present in a concentration selected from the group consisting of 1 μg/mL – 1000 μg/mL, 5 μg/mL – 500 μg/mL, 8 μg/mL – 120 μg/mL, 8 μg/mL – 12 μg/mL; and 80 μg/mL – 120 μg/mL.

26. The oral care composition of claim 25, wherein the composition results in an increase selected from the group consisting of 50% - 150% of the % increase in RFU (relative fluorescence unit) in a calcium mobilization assay for determining agonist activity of the human M3 receptor relative to the $EC_{50}$ of acetylcholine; 60% - 125% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine; and 75% - 110% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine.

27. The oral care composition of any one of claims 21-26, wherein the extract of *Zingiberaceae*, *Lamiaceae*, *Fabaceae*, *Solanaceae*, *Punicaceae*, *Asteraceae* or mixtures thereof contains an oligosaccharide.

28. A method for treating dry mouth comprising administering to a subject with dry mouth an effective dosage unit of an oral care composition comprising a dry mouth component, whereby the dry mouth comprises the composition of claim 21.

29. The method of claim 28, wherein the extract of *Zingiberaceae* is an extract of *Zingiber officinale*, the extract of *Lamiaceae* is an extract of *Prunella vulgaris* L., the extract of *Fabaceae* is an extract of *Glycyrrhiza uralensis*, the extract of *Solanaceae* is an extract of *Lycium chinense mill* L., the extract of *Punicaceae* is an extract of *Punica granatum* L., the extract of *Asteraceae* is an extract *Acmella oleracea*.



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30. The method of claim 29, wherein

the extract *Prunella vulgaris* L. or *Glycyrrhiza uralensis* L. is present in an amount selected from the group consisting of from 0.05% to 1.00%, from 0.15% to 0.75% and 0.5%;

the extract *Punica granatum* L. is present in an amount selected from the group consisting of from 0.075% to 1.00%, from 0.08% to 0.75% and 0.25%;

the extract *Lycium chinense mill* L. extract is present in an amount selected from the group consisting of less than 0.75%, from 0.01% to 0.10%, from 0.03% to 0.08% and preferably 0.05%;

the extract *Zingiber officinale* is present in an amount selected from the group consisting of from 0.0005% to 0.010%, from 0.001% to 0.005% and 0.005%; and

the extract of *Asteraceae* is *Acmella oleracea* (para cress) extract present in an amount selected from the group consisting of greater than 0.5%, from 0.5% to 2.0%, from 0.6% to 1.50% and 1%.

31. The method of any one of claims 29-30, wherein

the *Prunella vulgaris* L. or *Glycyrrhiza uralensis* L. extract is present in the saliva at concentrations selected from the group consisting of from 10 ppm to 50 ppm, from 17 ppm to 47 ppm, from 25 ppm to 40 ppm and 33 ppm;

the *Punica granatum* L. extract is present in the saliva at concentrations selected from the group consisting of from 5 ppm to 50 ppm; from 5 ppm to 33 ppm; from 7 ppm to 33 ppm; from 10 ppm to 25 ppm; and 17 ppm;

the *Zingiber officinale* extract is present in the saliva at concentrations selected from the group consisting of from 0.1 ppm to 2 ppm; from 0.2 ppm to 1.7 ppm; from 0.2 ppm to 0.7 ppm; and 0.3 ppm;

the *Lycium chinense mill* L. extract is present in the saliva at concentrations selected from the group consisting of less than 5 ppm; from 1.7 ppm to 5 ppm; from 2.5 ppm to 4 ppm; and 3.3 ppm; and

the *Acmella oleracea* (para cress) extract is present in the saliva at concentrations selected from the group consisting of greater than 40 ppm; from 40 ppm to 100 ppm; from 50 ppm to 80 ppm; and 60 ppm.



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32. The method of any one of claims 29-31 , wherein the extract of *Zingiber officinale*, *Prunella vulgaris* L., *Glycyrrhiza uralensis*, *Lycium chinense mill* L., *Punica granatum* L., *Acmella oleracea* or mixtures thereof is further extracted with water and ethyl acetate with the water extract being fractionated via HPLC and is present in a concentration selected from the group consisting of 1 μg/mL – 1000 μg/mL, 5 μg/mL – 500 μg/mL, 8 μg/mL – 120 μg/mL, 8 μg/mL – 12 μg/mL; and 80 μg/mL – 120 μg/mL.

33. The method of claim 32, wherein the composition results in an increase selected from the group consisting of 50% - 150% of the % increase in RFU (relative fluorescence unit) in a calcium mobilization assay for determining agonist activity of the human M3 receptor relative to the $EC_{50}$ of acetylcholine; 60% - 125% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine; and 75% - 110% of the % increase in RFU relative to the $EC_{50}$ of acetylcholine.

34. The method of any one of claims 28-33, wherein the extract of *Zingiberaceae*, *Lamiaceae*, *Fabaceae*, *Solanaceae*, *Punicaceae*, *Asteraceae* or mixtures thereof contains an oligosaccharide.



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