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(57) Abstract

An orally absorbable improved dental formulation is provided. The dental formulation includes a base to which an active component is added. The active component comprises, based on the overall weight thereof, Vitamin C in an amount between about 10 and 25 weight percent, and Co–enzyme Q–10 (or ubiquinone), in an amount between 10 and 25 weight percent, are added.

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DENTAL FORMULATION

Background Of The Invention

Oral hygiene products have been in use for centuries. The most common of these products, toothpaste, typically consists of a mild abrasive dispersed in a gel or paste base, with detergents added to aid in cleaning, and fluoride added to reduce tooth decay. Nutritional supplements have been in use for less than a century and typically are supplied in forms to be swallowed and digested for subsequent dispersal throughout the body. Over the past one hundred and fifty years certain medications have been formulated to be absorbed directly through the mucus membranes of the mouth. Building on the evidence of high absorbability of medications through the lining of the mouth, nutritional supplements are also now recognized to be able to be absorbed in this way. Further, homeopathic remedies have, since their inception, been routinely administered via this route.

Although oral hygiene products presently on the market adequately address the need for cleaning the teeth and administering fluoride, no existing product takes full advantage of the ability of such a product to deliver to the oral cavity such nutrients and homeopathic remedies as would most benefit those individuals suffering from gum disease and tooth decay. It is well recognized that certain nutritional supplements are essential in reducing host susceptibility to chronic disease in the mouth.

Accordingly it would be desirable to provide a particular formulation of nutrients, including not only the more commonly used vitamins and minerals, but also including beneficial herbal ingredients as well as homeopathics, that act together to reduce and prevent major chronic diseases of the mouth.

Secondly, it would be desirable to provide such a formulation in a form directly absorbable through the mouth without need of assimilation through the digestive system.

Thirdly, it would be desirable to combine this formulation into carriers in common use, such as toothpaste, mouthwash, or chewing gum, so that individuals can gain the advantage of use without the need for taking a pill. Fourthly, it would be desirable to combine this information into carriers commonly used in the environment of the dental office, carriers such as dental prophylaxis paste, oral subgingival irrigation fluid, or biologically absorbable or

nonresorbable fiber matrices, so that the benefits of these key, orally absorbable nutrients, homeopathic remedies, and immune system stimulators can become part of the existing armamentarium of dentists and dental hygienists.

Summary Of The Invention

Generally speaking, in accordance with the invention, an orally absorbable improved dental formulation is provided. The dental formulation includes a base to which an active component is added. The active component includes one or more ingredients for physiologically and/or chemically reacting to the teeth or gums of a patient. Particularly, the active component comprises therein Vitamin C in an amount between about 10 and 25 weight percent, and coenzyme Q-10 (or ubiquinone) in an amount between 10 and 25 weight percent.

Optionally, Vitamin E may be added to the active component of the inventive composition in an amount in the active component between about 10 and 25 weight percent. Other ingredients that can be added to the active component include Vitamin A, the plant-based substance propolis, echinacea, and one or more homeopathic tissue salts.

In a preferred form, the inventive dental composition consists of a toothpaste composition, which when used, boosts the user's immune response to gum disease and tooth decay in addition to cleaning the teeth and freshening the breath. Although a toothpaste composition is preferred, the inventive formulation may be used in conjunction with a mouthwash or chewing gum. It may be also used in conjunction with dental treatment carrier such as prophylaxis paste and irrigation fluids.

In an alternative embodiment, the active component will include ubiquinone, but no Vitamin C; the ubiquinone will be present in an amount therein of between 10 and 25 weight percent. Other ingredients, as discussed above, may be added to the active component.

Accordingly, it is an object of the invention to provide an improved oral dental composition for enhancing the user's immune response to gum disease and tooth decay.

Yet another object of the invention is to provide a dental composition which is edible and safe.

Yet a further object of the invention is to provide a nutritionally active dental composition.

Still another object of the invention is to provide a biologically absorbable dental composition.

Still other objects and advantages of the invention will in part be obvious, and will in part be apparent from the following description.

The invention accordingly comprises the compositions embodying the features and construction, combination of elements and component parts as exemplified in the detailed disclosure hereinafter set forth, and the scope of the invention will be indicated in the claims.

Detailed Description Of The Preferred Embodiments

The inventive dental formulation, exclusive of the base to which it is added, includes, based on the overall weight of the active component, Vitamin C in an amount between about 10 and 25 weight percent and coenzyme Q-10, known as ubiquinone, in an amount also between about 10 and 25 weight percent. The Vitamin C component is in the form of either sodium ascorbate and/or calcium ascorbate, both of which are pH neutral, slightly abrasive, yet easily absorbable forms of Vitamin C. Vitamin C is used in the inventive dental formulation in order to promote healing of the mouth from gum disease, and to reduce plaque build-up on the teeth. Coenzyme Q-10 is added to the inventive dental formulation for its known benefit in enhancing the health of the gums.

In addition to the Vitamin C and ubiquinone ingredients, the active component of the dental formulation of the invention may also include Vitamin E in an amount between about 10 and 25 weight percent, also based on the weight of the active component. Preferably, the Vitamin E ingredient is added to the formulation in the form of d-alpha tocopherol, which may also contain in addition or instead d-beta, d-gamma and d-delta tocopherols. This form of Vitamin E is a dry, wheat germ oil-free form of Vitamin E having the appearance of a white powder. The Vitamin E ingredient is added to the inventive formulation because of its recognized value in promoting the healing of gum tissue.

Other ingredients which may be added to the active component of the inventive formulation include Vitamin A, propolis, echinacea, and one or more homeopathic tissue salts. If Vitamin A is added, it is added in an amount between about 10 and 25 weight percent bases on the total weight of the active component. Vitamin A is preferably added in the form of

water dispersed Vitamin A acetate, which is a dry fish oil free form of Vitamin A having the appearance of a beige powder. Vitamin A is added to the inventive formulation for its recognized value in the promotion of gum tissue healing.

Propolis is added to the active component of the inventive formulation in an amount between about 5 and 15 weight percent. Propolis is a plant-based substance used by bees in the construction of germ-free hives, and consists of a pale yellow powder. Propolis is added to the inventive formulation since it is well known to facilitate the fight against bacterial infections, for its stimulation of phagocytosis, for its use as a salve on abraded, bruised or inflamed mucous membranes, and otherwise for its overall stimulation of the immune system.

Echinacea is added to the active component of the inventive formulation in an amount between about 3 and 10 weight percent. Echinacea is an herbal extract of the Purple Cone Flower, and consists of a light brown liquid in a water/glycerin or water/10-20% alcohol vehicle. Echinacea is added to the dental formulation for its recognized properties in boosting the immune system so that the body is resistant to bacteria and viruses. Echinacea is also effective in reducing inflammation and stimulating lymphatic tissue drainage.

As discussed above, one or more homeopathic tissue salts may be included in the active component of the inventive formulation. The sales are added to the active component in an amount between 5 and 25 weight percent.

In a preferred formulation, the homeopathic tissue salt ingredient will consist of a complex of twelve homeopathic remedies, known collectively as the biochemic tissue salts. These consist of the following homeopathic tissue salts, each of which is in a potency in the range of between about 3X and 15X, and existing in 80% water/20% alcohol medium.

Calc Fluor - used for its activity in reducing caries susceptibility and improving tissue elasticity.

Calc Phos - used for its activity in harmonizing bone and dental enamel metabolism.

Calc Sulph - used for its activity in purifying the blood and the tissues of the mouth, and for its role in improving the odor of the breath.

Ferr Phos - used for its action in mitigating inflammation and boosting the oxygen carrying capacity of the blood.

Kali Mur- used for its activity in aiding the general healing response.

Kali Phos - used for its activity for improving gum tissue health.

Kali Sulph - used for its activity in improving cellular metabolism and cell detoxification.

Mag Phos - used for its activity as a general tissue tonic.

Nat Mur - used for improved salivary gland activity.

Nat Phos - used as an acid neutralizer and as an aid to nutrient absorption.

Nat Sulph - used to improve gum tissue tone and to aid cells in purging intracellular toxins.

Silica - used in elimination toxins from tissues and improving tissue tone.

Alternatively, the homeopathic tissue formulation will be a four salt form comprising calc fluor, calc phos, calc sulph and silica.

In an alternative form, the active component of the inventive formulation will include ubiquinone in an amount in the active component of from 10 - 25 weight percent. The Vitamin C ingredient need not be added, but other active component ingredients can be added.

In addition to the active component of the inventive dental formulation, an optional component may also be added to and mixed with the active component base. The optional component will consist of at least one of cranberry extract, stevia, tangerine oil, and lemon oil.

The cranberry extract of the optional component would be present therein in an amount between about 20 and 50 weight percent. Cranberry extract is a red liquid of the Viburnum Oplus berry and is used in the formulation for its ability to prevent the adherence of bacteria to various structures of the mouth, as well as for its use as a flavoring agent. Cranberry extract may be bought from most conventional health food stores in either the form of encapsulated powder of the extract or in a liquid form.

Stevia may be added to the optional component formulation in an amount therein between about 25 and 50 weight percent. Stevia is an herbal extract of the Stevia Rebaudiana plant, and comprises a clear, slightly syrupy liquid. Stevia is used in the inventive formulation for its natural sweetness, while at the same time inhibiting the formation of plaque on teeth. It also serves the purpose of balancing the salty taste that is associated with the addition of sodium ascorbate (Vitamin C). Further, stevia reduces the craving for other plaque - and caries - producing sweets.

Tangerine oil may be part of the optional component in an amount between about 10 and 25 weight percent. Tangerine oil is the essential oil of the common fruit of the same name, and is merely added as a natural flavoring agent.

Lemon oil may also be added in an amount between about 10 and 25 weight percent to the optional component, and like the tangerine oil ingredient, it is the essential oil of the common fruit of the same name. It is used in the composition as a natural flavoring agent.

For a toothpaste, the base component of inventive formulation will include water in amount between about 5 and 20 weight percent and glycerine in an amount between about 10 and 40 weight percent. The base preferably also includes abrasives such as calcium carbonate in an amount between about 20 and 40 weight percent and silica in an amount between about 20 and 40 weight percent. The water component can either be filtered, distilled or deionized. The glycerine component would preferably be vegetable glycerin, which is the sweet syrupy trihydroxy alcohol ($C_3H_8O_3$) derived from the manufacture of vegetable soap. It is added to the base both as a moisturizer and lubricant of the mouth, as well as to facilitate the cleansing of the teeth and the absorption of nutrients. It further functions as a liquid vehicle for forming the ingredients into an appropriate consistency.

The calcium component comprises an edible powder thereof. The silica component comprises an edible powder made by milling the mineral quartz. It is used in the base of the inventive formulation as a mild abrasive and consistency modulator.

Overall, the inventive formulation as a toothpaste will include an active component in an amount between about 8 and 33 weight percent, and a base component in an amount between about 65 and 90 weight percent. If one or more of the ingredients of the optional component is added, the optional component will be present in the overall toothpaste formulation in an amount between about 0.5 and 5 weight percent.

The most preferred toothpaste formulation in weight percent is as follows:

EXAMPLE 1

Calcium Carbonate	32%
Silica	26%
Glycerine	23%
Deionized water	9%

Vitamin A	2%
Vitamin C	2%
Vitamin E	2%
Co-enzyme Q-10	1%
Propolis	0.6%
Echinacea	0.4%
Homeopathics	1%
Cranberry Ext.	0.4%
Stevia Ext.	0.3%
Tangerine oil	0.17%
Lemon oil	0.13%

Other suitable formulations for toothpaste composition comprising both Vitamin C and ubiquinone are as follows:

EXAMPLE 2

Calcium Carbonate	32%
Silica	26%
Glycerine	23%
Deionized water	9%
Vitamin C	3.0%
Vitamin E	3.7%
Co-enzyme Q-10	3%
Tangerine oil	0.17%
Lemon oil	0.13%

EXAMPLE 3

Calcium Carbonate	32%
Silica	26%
Glycerine	23%
Deionized water	9%
Vitamin A	3%

Vitamin C	3%
Co-enzyme Q-10	3%
Stevia Ext.	1%

EXAMPLE 4

Calcium Carbonate	32%
Silica	26%
Glycerine	23%
Deionized water	8%
Vitamin C	3%
Co-enzyme Q-10	3%
Propolis	0.5%
Homeopathics	2%
Cranberry Ext.	2.5%

EXAMPLE 5

Calcium Carbonate	32%
Silica	26%
Glycerine	23%
Deionized water	9%
Vitamin C	2.5%
Vitamin E	3.5%
Co-enzyme Q-10	2.5%
Exhinacea	0.25%
Cranberry Ext.	1.05%
Lemon oil	0.2%

EXAMPLE 6

Calcium Carbonate	32%
Silica	26%
Glycerine	23%

Deionized water	9%
Vitamin A	3.5%
Vitamin C	2.5%
Co-enzyme Q-10	2.5%
Homeopathics (four salt form)	0.5%
Stevia Ext.	0.7%
Tangerine oil	0.17%
Lemon oil	0.13%

Suitable formulations for the inventive toothpaste composition comprising just ubiquinone and other ingredients in the active component (other than Vitamin C) are as follows:

EXAMPLE 7

Calcium Carbonate	32%
Silica	26%
Glycerine	23%
Deionized water	9%
Vitamin E	4%
Co-enzyme Q-10	4%
Echinacea	0.2%
Homeopathics (four salt form)	0.5%
Cranberry Ext.	1.1%
Tangerine oil	0.2%

EXAMPLE 8

Calcium Carbonate	32%
Silica	26%
Glycerine	23%
Deionized water	9%
Vitamin A	4%

Co-enzyme Q-10	3.5%
Propolis	0.5%
Homeopathics	1%
Cranberry Ext.	0.75%
Stevia Ext.	0.25%

The inventive formulation may also be in the form of a dental prophylaxis paste. In this form, the base component comprises water in an amount between about 5 and 25 weight percent and glycerin in an amount between about 10 and 50 weight percent. It may also include calcium carbonate in an amount between about 20 and 40 weight percent, and silica in an amount between about 20 and 40 weight percent.

Overall, the inventive formulation as a prophylaxis paste will comprise between about 10 and 50 weight percent of the active component, and 48 to 88 weight percent of the base component. The optional component may be added in an amount between about 0.5 and 2 weight percent.

The most preferred prophylaxis paste composition in percent by weight is as follows:

EXAMPLE 9

Calcium Carbonate	29%
Silica	25%
Glycerine	9%
Deionized water	9%
Vitamin A	5.5%
Vitamin C	5.5%
Vitamin E	5.5%
Co-enzyme Q-10	5.5%
Propolis	2%
Echinacea	2%
Homeopathics	1%
Cranberry Ext.	0.4%
Stevia Ext.	0.3%
Tangerine oil	0.17%

Lemon oil	0.13%

Other suitable formulation for prophylaxis paste composition comprising both Vitamin C and ubiquinone are as follows:

EXAMPLE 10

Calcium Carbonate	29%
Silica	25%
Glycerine	9%
Deionized water	9%
Vitamin A	2%
Vitamin C	8%
Vitamin E	7.5%
Co-enzyme Q-10	10%
Tangerine oil	0.3%
Lemon oil	0.2%

EXAMPLE 11

Calcium Carbonate	29%
Silica	25%
Glycerine	9%
Deionized water	9%
Vitamin C	8%
Vitamin E	6.5%
Co-enzyme Q-10	10%
Echinacea	0.5%
Cranberry Ext.	2.8%
Lemon oil	0.2%

EXAMPLE 12

Calcium Carbonate	29%
Silica	25%

Glycerine	9%
Deionized water	9%
Vitamin A	8.5%
Vitamin C	8%
Co-enzyme Q-10	10%
Homeopathics (four salt form)	0.5%
Stevia Ext.	0.7%
Tangerine oil	0.17%
Lemon oil	0.13%

One possible formulation for a prophylaxis paste composition comprising just ubiquinone and other ingredients in the active component (other than Vitamin C) is as follows:

EXAMPLE 13

Calcium Carbonate	27%
Silica	23%
Glycerine	10%
Deionized water	12%
Vitamin E	13%
Co-enzyme Q-10	13%
Echinacea	0.5%
Homeopathics (four salt form)	0.5%
Cranberry Ext.	0.8%
Tangerine oil	0.2%

In order to prepare the inventive formulation, the required amounts of Vitamin A powder, Vitamin C powder, Vitamin E powder, Propolis, and Co-enzyme Q-10 are first combined and milled together to yield a uniformly textured fine powder, which is the sum of the dry ingredients of the formulation.

Separately, the required amount of glycerine, water, homeopathic tissue salts, Echinacea extract, Cranberry extract, Stevia extract, Tangerine oil, and Lemon oil are combined and thoroughly mixed.

The dry ingredients of the formulation are then slowly added to the liquid ingredients while mixing, until a homogeneous slurry is products.

To this slurry, the required amount of the milled calcium carbonate and silica powder is added incrementally while stirring until all of this powder has been incorporated, resulting in a homogenous mass of a suitable, paste-like composition for use as, on the one hand, the toothpaste composition of the invention, or, on the other hand, the dental prophylaxis paste composition of the invention.

In still a further form, the inventive formulation will include a base and at least one of cranberry extract in an amount between about 0.1 and 5 weight percent and stevia (a specific herbal extract) in an amount between about 0.1 and 4 weight percent, the weight percents based on the overall weight of the formulation. One or more active component ingredients, as discussed hereinabove, may be added to this alternative formulation.

Examples of this additional embodiment as a toothpaste composition are as follows:

EXAMPLE 14

Calcium Carbonate	35%
Silica	31%
Glycerine	26%
Deionized water	6%
Cranberry Ext.	1.8%
Lemon oil	0.2%

EXAMPLE 15

Calcium Carbonate	35%
Silica	32%
Glycerine	16.5%
Deionized water	5%
Propolis	1%
Echinacea	0.4%
Homeopathics	0.5%
Stevia Ext.	0.6%

Examples of this additional embodiment as a prophylaxis paste composition are as follows:

EXAMPLE 15

Calcium Carbonate	35%
Silica	32%
Glycerine	16.5%
Deionized water	14.5%
Cranberry Ext.	1.8%
Lemon oil	0.2%

EXAMPLE 17

Calcium Carbonate	36%
Silica	31%
Glycerine	15.5%
Deionized water	13.5%
Propolis	1.0%
Echinacea	1.0%
Homeopathics	1.0%
Stevia Ext.	1.0%

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained, and since certain changes may be made in the above compositions, without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description shall be interpreted as illustrative, and not in a limiting sense.

It is also to be understood that the following claims are intended to all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Claims

1. An orally absorbable dental formulation comprising a base and an active component, wherein the active component includes Vitamin C in an amount between about 10 and 25 weight percent, and ubiquinone in an amount between 10 and 25 weight percent, the weight percents based on the total weight of the active component.

2. The formulation of Claim 1, wherein the Vitamin C ingredient is in a form selected from the group consisting of sodium ascorbate and calcium ascorbate.

3. The formulation of Claim 1, wherein said active component also includes Vitamin E in an amount between about 10 and 25 weight percent.

4. The formulation of Claim 3, wherein the Vitamin E ingredient is in the form selected from the group consisting of d-alpha tocopherol, d-beta tocopheral, d-gamma tocopheral and d-delta tocopherol.

5. The formulation of Claim 1, wherein the active component further includes at least one of Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount between about 5 and 15 weight percent, echinacea in an amount between about 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent.

6. The formulation of Claim 5, wherein the Vitamin A ingredient is in the form of water-disbursed Vitamin A acetate.

7. The formulation of Claim 1, further including an optional component comprising at least one of cranberry extract, stevia, tangerine oil and lemon oil.

8. The formulation of Claim 7, wherein each of the cranberry extract and stevia ingredients in present in the optional component in an amount between about 25 and 50 weight percent.

9. The formulation of Claim 7, wherein each of tangerine oil and lemon oil is present in the optional component in amount between about 10 and 25 weight percent.

10. The formulation of Claim 1, wherein said base component comprises at least on of water in an amount between about 5 and 25 weight percent, glycerine in an amount between about 10 and 50 weight percent, calcium carbonate in an amount between about 20 and 40 weight percent, and silica in an amount between about 20 and 40 weight percent, the weight percents based on the overall weight of the base component.

11. The formulation of Claim 1, wherein said base component is present in the formulation in an amount between about 65 and 90 weight percent, and said active component is present in an amount between about 8 and 33 weight percent.

12. The formulation of Claim 11, wherein said base component is present in the formulation in an amount between about 48 and 88 weight percent, and said active component is present in the formulation in an amount between about 10 and 50 weight percent.

13. The formulation of Claim 7, wherein said option component is present in the formulation in an amount between about 0.5 and 2 weight percent.

14. The formulation of Claim 5, wherein the homeopathic tissue salt ingredient is selected from the group consisting of Calc Fluor, Calc Phos, Calc Sulph, Ferr Phos, Kali Mur, Kali Phos, Kali Sulph, Mag Phos, Nat Mur, Nat Phos, Nat Sulph, and Silica.

15. The formulation of Claim 5, wherein said homeopathic tissue sale includes one or more tissue salts having a potency in the range of between 3X and 15X.

16. The formulation of Claim 5, wherein said homeopathic tissue salt includes one or more tissue salts in a form selected from the group consisting of an 80% water/20% alcohol vehicle.

17. An active component composition for an orally absorbable dental formulation comprising Vitamin C in an amount between about 10 and 25 weight percent and ubiquinone in an amount between about 10 and 25 weight percent.

18. The composition of Claim 17, further including at least one of Vitamin E in an amount between about 10 and 25 weight percent, Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount between 5 and 15 weight percent, echinacea in an amount between about 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent.

19. A dental toothpaste formulation comprising a base in an amount between about 65 and 90 weight percent and an active component in an amount between about 8 and 33 weight percent, the active component comprising therein Vitamin C from about 10 to 25 weight percent, and ubiquinone from about 10 and 25 weight percent.

20. The formulation of Claim 19, wherein the active component further comprises therein at least one of Vitamin E in an amount between about 10 and 25 weight percent, Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount

between about 5 and 15 weight percent, echinacea in an amount between about 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent.

21. The formulation of Claim 19, wherein said base comprises water in an amount between about 5 and 25 weight percent, glycerine in an amount between about 10 and 50 weight percent, calcium carbonate in an amount between about 20 and 40 weight percent, and silica in an amount between about 20 and 40 weight percent, the weight percents based on the overall weight of the base component.

22. The formulation of Claim 19, further including an optional component in an amount between about 0.5 and 2 weight percent comprising at least one of cranberry extract, stevia, tangerine oil and lemon oil.

23. An orally absorbable dental formulation comprising a base and an active component containing a plurality of active ingredients, at least one of said ingredients comprising ubiquinone in an amount in the active component of between about 10 and 25 weight percent.

24. The formulation of Claim 23, wherein said plurality of ingredients are further selected from the group consisting of Vitamin E in an amount between about 10 and 25 weight percent, Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount between about 5 and 15 weight percent, echinacea in an amount between about 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent, the weight percent based on the overall weight of the active component.

25. The formulation of Claim 23, wherein said base component is present in the formulation in an amount between about 65 and 90 weight percent, and said active component is present in the formulation in an amount between about 8 and 33 weight percent.

26. The formulation of Claim 23, wherein said base component is present in the formulation in an amount between about 48 and 88 weight percent, and said active component is present in the formulation in an amount between about 10 and 50 weight percent.

27. The formulation of Claim 23, further including an optional component comprising at least one of cranberry extract, stevia, tangerine oil and lemon oil.

28. The formulation of Claim 25, wherein said base component comprises at least one of water in an amount between about 5 and 25 weight percent, glycerine in an amount between about 10 and 50 weight percent, calcium carbonate in an amount between about 20 and 40 weight percent, and silica in an amount between about 20 and 40 weight percent, the weight percents based on the overall weight of the base component.

29. An active component composition for an orally absorbable dental formulation predominantly made up of a base, the active component composition comprising ubiquinone in an amount between about 10 and 25 weight percent.

30. The composition of Claim 29, further including at least one of Vitamin E in an amount between about 10 and 25 weight percent, Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount between about 5 and 15 weight percent, echinacea in an amount between about 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent.

31. An orally absorbable formulation comprising a base and at least one of cranberry extract in an amount between about 0.1 and 5 weight percent and stevia in an amount between about 0.1 and 4 weight percent.

32. The formulation of Claim 31, wherein said base component comprises in said base at least one of water in an amount between about 5 and 25 weight percent, glycerine in an amount between about 10 and 50 weight percent, calcium carbonate in an amount between about 20 and 40 weight percent, and silica in an amount between about 20 and 40 weight percent, the weight percents based on the overall weight of the base component.

33. The formulation of Claim 31, further including a suitable amount of an active component comprising a plurality of ingredients for physiologically and/or chemically reacting with teeth and/or gums.

34. An orally absorbable dental formulation comprising a base and ubiquinone as an active component.

35. The dental formulation of Claim 34, wherein ubiquinone is present in the formulation in an amount between about 1 and 13 weight percent.

36. The dental formulation of Claim 34, wherein said active component further comprises an ingredient selected from the group consisting of Vitamin E, Vitamin A, propolis, echinacea and one or more homeopathic tissue salts.

37. The formulation of Claim 34, further including an ingredient selected from the group consisting of cranberry extract, stevia, tangerine oil and lemon oil.

38. The formulation of Claim 34, wherein said base is made from water, glycerine, calcium carbonate and silica.

AMENDED CLAIMS

[received by the International Bureau on 3 November 1998 (03.11.98); original claims 1-22 and 31-33 cancelled; original claims 23-26, 29,30,37 and 38 amended; new claims 39-52 added; remaining claims unchanged (4 pages)]

23. An orally absorbable dental formulation comprising a base and an active component containing a plurality of active ingredients, at least one of said ingredients comprising ubiquinone in an amount in the active component of between about 10 and 25 weight percent by weight of the active component.

24. The formulation of Claim 23, wherein said plurality of ingredients are further selected from the group consisting of Vitamin E in an amount between about 10 and 25 weight percent, Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount between about 5 and 15 weight percent, echinacea in an amount between about 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent, the weight percent based on the overall weight of the active component.

25. The formulation of Claim 23, wherein said base component is present in the formulation in an amount between about 65 and 90 weight percent, and said active component is present in the formulation in an amount between about 8 and 33 weight percent.

26. The formulation of Claim 23, wherein said base component is present in the formulation in an amount between about 48 and 88 weight percent, and said active component is present in the formulation in an amount between about 10 and 50 weight percent.

27. The formulation of Claim 23, further including an optional component comprising at least one of cranberry extract, stevia, tangerine oil and lemon oil.

28. The formulation of Claim 25, wherein said base component comprises at least one of water in an amount between about 5 and 25 weight percent, glycerine in an amount between

about 10 and 50 weight percent, calcium carbonate in an amount between about 20 and 40 weight percent, and silica in an amount between about 20 and 40 weight percent, the weight percents based on the overall weight of the base component.

29. An active component composition for an orally absorbable dental formulation predominantly made up of a base, the active component composition comprising ubiquinone in an amount between about 10 and 25 weight percent.

30. The composition of Claim 29, further including at least one of Vitamin E in an amount between about 10 and 25 weight percent, Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount between about 5 and 15 weight percent, echinacea in an amount between about 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent.

34. An orally absorbable dental formulation comprising a base and ubiquinone as an active component.

35. The dental formulation of Claim 34, wherein ubiquinone is present in the formulation in an amount between about 1 and 13 weight percent.

36. The dental formulation of Claim 34, wherein said active component further comprises an ingredient selected from the group consisting of Vitamin E, Vitamin A, propolis, echinacea and one or more homeopathic tissue salts.

37. An orally absorbable dental formulation comprising a base and an active component comprising ubiquinone in an amount between about 10 and 25 percent by weight of the active component including at least one ingredient selected from the group consisting of

cranberry extract, stevia, tangerine oil and lemon oil.

38. The formulation of Claim 34, wherein said base is made from water, glycerine, calcium carbonate and silica. An orally absorbable dental formulation comprising:

a base; and

an active component comprising ubiquinone.

39. The composition of Claim 37, wherein the active component further includes at least one of Vitamin E in an amount between about 10 and 25 weight percent of the active component, Vitamin A in an amount between about 10 and 25 weight percent, propolis in an amount between about 5 and 15 weight percent, echinacea in an amount between 3 and 10 weight percent, and one or more homeopathic tissue salts in an amount between about 5 and 25 weight percent.

40. The dental formulation of Claim 37, which comprises a toothpaste.

41. The dental formulation of Claim 38, wherein ubiquinone is present in an amount between about 0.8 and about 13 weight percent of the active component.

42. The dental formulation of Claim 40, wherein said active component further includes an ingredient selected from the group consisting of Vitamin E, Vitamin A, propolis, echinacea and one or more homeopathic tissue salts.

43. The dental formulation of Claim 40, further including an ingredient selected from the group consisting of cranberry extract, stevia, tangerine oil and lemon oil.

44. The dental formulation of Claim 38, which comprises a prophylaxis paste.

45. The dental formulation of Claim 34, which comprises toothpaste.

46. The dental formulation of Claim 34, which comprises a mouthwash.

47. The dental formulation of Claim 34, which comprises a prophylaxis paste.

48. The dental formulation of Claim 34, which comprises chewing gum.

49. The dental formulation of Claim 34, which comprises a subgingival irrigation fluid.

50. The dental formulation of Claim 34, which comprises coated fibers.

51. The formulation of Claim 50, wherein said coated fibers is floss.

52. The formulation of Claim 50, wherein said coated fibers are toothbrush bristles.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/12293

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :A61K 7/16, 7/24, 7/26
US CL :424/49, 424/55, 424/58

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49, 424/55, 424/58

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, CAS ONLINE, WPIDS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Chem. abstr., Vol.93, No.16, 20 October 1980 (Columbus. OH, USA), page 348, column 2, the abstract No. 155774z, CECH, M. 'Protosan - a drug preparation for the treatment of inflammation in the oral cavity.' Rozvoj Farm. Ramci Ved.-Tech. Revoluce, Sb. Prednasek Sjezdu Cesk. Farm. Spol. 1979,15-18 (Czech).	1-38
Y	Chem. abstr., Vol.122, No.5, 30 January 1995 (Columbus. OH, USA), page 70, column 2, the abstract No. 46020x, KAWAMURA, M. et al. 'Antioxidative effects of probucol and changes in the concentrations of in vivo antioxidants following an oral administration of probucol.' Domyaku Koka. 1994, 22(6/7), 501-508 (Japanese).	1-38

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 13 JULY 1998	Date of mailing of the international search report 03 SEP 1998
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer D. MARGARET M. MACH Telephone No. (703) 308-1235

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/12293

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 61-286314 A (EISAI CO LTD) 12 December 1986, abstract.	1-38
Y	JP 04-055404 B (SEUREF AG) 23 December 1986, abstract.	1-38