

DESCRIPTION

TITLE OF INVENTION: ORAL COMPOSITION AND METHOD FOR
MINIMIZING BITTER TASTE RESULTING FROM ERGOTHIONEINE OR
5 SALT THEREOF AND ODOR RESULTING FROM VITAMIN E

TECHNICAL FIELD

[0001]

The present invention relates to an oral composition.
10 The present invention also relates to a method of reducing
the bitterness and odor of an oral composition containing
ergothioneine or its salt and a vitamin E compound, the
bitterness being ergothioneine- or its salt-derived
bitterness, the odor being vitamin E compound-derived odor.

15

BACKGROUND ART

[0002]

Ergothioneine is one of hydrophilic sulfur-containing
amino acids and is known to have various physiological
20 activities including an antioxidant ability. Regarding the
physiological activities of ergothioneine, for example,
Patent Literature 1 reports actions such as one that
promotes the immune response activating cytokine
production. Ergothioneine, which has various physiological
25 activities, has been drawing attention recently for its use
for food, cosmetics, and pharmaceutical products.

[0003]

Vitamin E is a fat-soluble antioxidant vitamin.
Vitamin E has various physiological activities such as
30 improving blood flow, preventing or alleviating
arteriosclerosis, and reducing LDL (bad cholesterol).
Vitamin E has been widely used in food or beverages,
pharmaceutical products, feed, and the like.

35

CITATION LIST

- Patent Literature

[0004]

Patent Literature 1: JP 2017-218431 A

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SUMMARY OF INVENTION

- Technical Problem

[0005]

As described above, since ergothioneine has useful physiological activities, foods such as supplements containing ergothioneine or its salt are useful for maintaining or promoting health. Since vitamin E compounds also have useful physiological activities as described above, presumably, various useful effects can be expected from ingestion of an oral composition containing ergothioneine or its salt and a vitamin E compound. However, ergothioneine and its salts have a unique aroma and flavor, particularly, a bitterness that stings the tongue, so that there is room for improvement in providing an oral composition containing ergothioneine or its salt. Vitamin E compounds have an unpleasant aroma and flavor, specifically, a distinctive odor. The odor sometimes poses a problem when a vitamin E compound is added to an oral composition.

[0006]

The present invention aims to provide an oral composition containing ergothioneine or its salt and a vitamin E compound in which ergothioneine- or its salt-derived bitterness and vitamin E compound-derived odor are reduced. The present invention also relates to a method of reducing ergothioneine- or its salt-derived bitterness and vitamin E compound-derived odor.

- Solution to Problem

[0007]

As a result of extensive studies to solve the above

problems, the present inventors found that a combination of ergothioneine or its salt and a vitamin E compound in a specific ratio can reduce the ergothioneine- or its salt-derived bitterness and the vitamin E compound-derived odor.

5 [0008]

The present invention encompasses the following oral composition and the like.

(1) An oral composition containing a component (A); and a component (B) recited below:

10 (A) ergothioneine or its salt; and (B) at least one vitamin E compound, wherein a weight ratio (B)/(A) of the component (B) in terms of vitamin E to the component (A) in terms of ergothioneine is 1 to 27.

15 (2) The composition according to (1) above, wherein the weight ratio (B)/(A) of the component (B) in terms of vitamin E to the component (A) in terms of ergothioneine is 2 to 26.

(3) The composition according to (1) or (2) above, wherein the component (B) is at least one of tocopherol or
20 tocotrienol.

(4) The composition according to any one of (1) to (3) above, wherein the component (B) is at least one of α -tocopherol or γ -tocopherol.

25 (5) The composition according to any one of (1) to (4) above, wherein the composition contains an edible fat or oil.

(6) The composition according to any one of (1) to (5) above, wherein the component (B) is derived from a vegetable fat or oil.

30 (7) The composition according to any one of (1) to (6) above, wherein the composition is a food or beverage.

(8) A method of reducing bitterness and odor of an oral composition containing a component (A) and a component (B) recited below:

35 (A) ergothioneine or its salt; and (B) at least one

vitamin E compound, the bitterness being derived from the component (A), the odor being derived from the component (B), the method including: adjusting a weight ratio (B)/(A) of the component (B) in terms of vitamin E to the component (A) in terms of ergothioneine to 1 to 27.

- Advantageous Effects of Invention

[0009]

The present invention can provide an oral composition containing ergothioneine or its salt and a vitamin E compound in which the ergothioneine- or its salt-derived bitterness and the vitamin E compound-derived odor are reduced. The present invention can also provide a method of reducing the ergothioneine- or its salt-derived bitterness and the vitamin E compound-derived odor.

DESCRIPTION OF EMBODIMENTS

[0010]

The oral composition of the present invention contains (A) ergothioneine or its salt (component (A)) and (B) at least one vitamin E compound (component (B)), wherein the weight ratio ((B)/(A)) of the component (B) (in terms of vitamin E) to the component (A) (in terms of ergothioneine) is 1 to 27.

[0011]

Ergothioneine is one of the sulfur-containing amino acids. In the present invention, ergothioneine is preferably L-ergothioneine.

Any salt of ergothioneine may be used as long as it is a pharmacologically acceptable salt or a dietary acceptable salt, and the salt may be either an acid salt or a basic salt. Examples of the acid salt include inorganic acid salts such as hydrochloride, sulfate, nitrate, and phosphate, and organic acid salts such as acetate, citrate, maleate, malate, oxalate, lactate, succinate, fumarate, and

propionate. Examples of the basic salt include alkali metal salts such as sodium salt and potassium salt, and alkaline earth metal salts such as calcium salt and magnesium salt.

5 [0012]

Ergothioneine or its salt is not limited in any way by its form, production method, or the like. Chemically synthesized ergothioneine or its salt may be used, or a naturally extracted and purified ergothioneine or its salt may be used. L-ergothioneine is abundant in golden/yellow oyster mushrooms (scientific name: *Pleurotus cornucopiae* var. *citrinopileatus*) belonging to the genus *Pleurotus* of the family Pleurotaceae. L-ergothioneine is also present in mushrooms such as common mushrooms (scientific name: *Agaricus bisporus*) including white button mushrooms, cremini mushrooms, and portabella mushrooms; grey oyster mushrooms (scientific name: *Pleurotus ostreatus*), shiitake (scientific name: *Lentinula edodes*), hen-of-the-woods (scientific name: *Grifola frondosa*), reishi mushrooms (scientific name: *Ganoderma lucidum*), lion's mane mushrooms (scientific name: *Hericium erinaceus*), Yanagi-matsutake (scientific name: *Agrocybe aegerita*), girolles (scientific name: *Cantharellus cibarius*), porcini mushrooms (scientific name: *Boletus edulis*), and morel mushrooms (scientific name: *Morchella esculenta*). When L-ergothioneine is obtained from a natural product, preferably, it is extracted from a golden/yellow oyster mushroom, for example. Ergothioneine or its salt can also be produced by microbial fermentation. Ergothioneine or its salt may be in an isolated form.

[0013]

Herein, the term "vitamin E compound" refers to vitamin E and any of its derivatives. One vitamin E compound may be used alone, or two or more vitamin E compounds may be used in combination.

Herein, the term "vitamin E" refers to tocopherol and tocotrienol. Tocopherol that can be used may include one or more selected from the group consisting of α -tocopherol, β -tocopherol, γ -tocopherol, and δ -tocopherol. Tocotrienol
5 that can be used may include one or more selected from the group consisting of α -tocotrienol, β -tocotrienol, γ -tocotrienol, and δ -tocotrienol. Tocopherol, tocotrienol, and their derivatives each may be in any of the d-form, l-form, or dl-form, with the d-form being preferred.

10 [0014]

Any vitamin E derivative may be used as long as it is dietary or pharmacologically acceptable. Examples include organic acid esters of tocopherol, such as tocopheryl acetate, tocopheryl succinate, tocopheryl linoleate, and
15 tocopheryl linolenate.

[0015]

In the present invention, the vitamin E compound is preferably at least one of tocopherol or tocotrienol (vitamin E), preferably at least one selected from the
20 group consisting of α -tocopherol, β -tocopherol, γ -tocopherol, δ -tocopherol, α -tocotrienol, β -tocotrienol, γ -tocotrienol, and δ -tocotrienol. The vitamin E compound is more preferably tocopherol, still more preferably at least one of α -tocopherol or γ -tocopherol, particularly
25 preferably at least one of d- α -tocopherol or d- γ -tocopherol.

[0016]

The vitamin E compound for use in the present invention is not limited in any way by its form, production
30 method, or the like. A chemically synthesized vitamin E compound may be used, or a naturally extracted and purified vitamin E compound may be used. Alternatively, a raw material having a high vitamin E compound content can be used to add a vitamin E compound to a composition.

35 Examples of the raw material having a high vitamin E

compound content include edible fats and oils. In one embodiment, the oral composition of the present invention may contain an edible fat or oil containing at least one vitamin E compound. The oral composition of the present invention may contain an edible fat or oil, and the vitamin E compound may be a part of the edible fat or oil. In one embodiment, a part or all of at least one vitamin E compound may be added as a part of the edible fat or oil to the oral composition.

10 [0017]

Preferably, the edible fat or oil containing the vitamin E compound is a vegetable fat or oil. In the oral composition of the present invention, the vitamin E compound is preferably one derived from an edible fat or oil, more preferably one derived from a vegetable fat or oil. Vegetable fats and oils are fats and oils extracted from plants and purified. Preferably, the vegetable fat or oil is a vegetable oil. The vegetable fat or oil includes one in which a vitamin E compound extracted from a plant is purified to a high concentration to increase the vitamin E compound content. Examples of the vegetable fat or oil having a high vitamin E compound content include vegetable oils such as soybean oil, cottonseed oil, rapeseed oil, safflower oil, sunflower oil, sesame oil, corn oil, rice oil, olive oil, and grapeseed oil. Of these, a vegetable oil containing soybean oil is preferred. In one embodiment, the oral composition of the present invention may contain a vegetable fat or oil. In one embodiment, the oral composition may contain a vegetable fat or oil, and a part or all of at least one vitamin E compound may be added as a part of the vegetable fat or oil to the oral composition. The vitamin E compound content (in terms of vitamin E) of the vegetable fat or oil is preferably 10 to 90 wt%, more preferably 40 to 90 wt%, still more preferably 50 to 80 wt%.

[0018]

In the oral composition of the present invention, the weight ratio ((B)/(A)) of (B) vitamin E compound (component (B)) in terms of vitamin E to (A) ergothioneine or its salt
5 (component (A)) in terms of ergothioneine is 1 to 27.

Ergothioneine and its salts have a bitterness that stings the tongue. Vitamin E compounds also have a distinctive odor. In the composition containing the component (A) and the component (B), when the weight ratio
10 ((B)/(A)) of the component (B) (in terms of vitamin E) to the component (A) (in terms of ergothioneine) is in the above range, both the bitterness derived from the component (A) and the odor derived from the component (B) can be reduced. This facilitates continuous intake of
15 ergothioneine or its salt and a vitamin E compound.

The weight ratio ((B)/(A)) is preferably 2 or more, more preferably 2.5 or more, and is preferably 26 or less, more preferably 16 or less. In one embodiment, the weight ratio ((B)/(A)) of the component (B) (in terms of vitamin
20 E) to the component (A) (in terms of ergothioneine) is preferably 2 to 26, more preferably 2.5 to 16.

Herein, regarding the expression for the content in terms of ergothioneine or an expression similar thereto, in the case of ergothioneine, the expression refers to the
25 ergothioneine content, whereas in the case of a salt of ergothioneine, the expression refers to a value obtained by multiplying the molar number of the salt by the molecular weight of ergothioneine.

Regarding the expression for the content in terms of
30 vitamin E or its similar expression, in the case of vitamin E, the expression refers to the vitamin E content, whereas in the case of a vitamin E derivative, the expression refers to the content in terms of vitamin E (tocopherol, tocotrienol). Specifically, when the vitamin E derivative
35 is a tocopherol derivative, the expression refers to the

content in terms of tocopherol, whereas when the vitamin E derivative is a tocotrienol derivative, the expression refers to the content in terms of tocotrienol. Regarding the vitamin E derivative content in terms of vitamin E, in the case of a tocopherol derivative, the content can be determined by multiplying the molar number of the derivative by the molar weight of tocopherol. In the case of a tocotrienol derivative, the derivative content in terms of vitamin E can be determined by multiplying the molar number of the derivative by the molar weight of tocotrienol. The weight of the vitamin E compound is the total weight when the composition contains two or more vitamin E compounds.

[0019]

In the oral composition of the present invention, the ergothioneine or its salt content is not limited and may be set according to the form of the composition or the like.

In the oral composition of the present invention, the ergothioneine or its salt content in terms of ergothioneine is, for example, preferably 0.1 wt% or more, more preferably 0.5 wt% or more, still more preferably 1 wt% or more, and is preferably 50 wt% or less, more preferably 20 wt% or less, still more preferably 10 wt% or less in the composition. In one embodiment, in the composition of the present invention, the ergothioneine or its salt content in terms of ergothioneine is preferably 0.1 to 50 wt%, more preferably 0.5 to 20 wt%, still more preferably 1 to 10 wt%. The ergothioneine content can be measured by high-performance liquid chromatography (HPLC).

[0020]

In the oral composition of the present invention, the vitamin E compound content is not limited and can be set according to the form of the composition or the like. In the oral composition of the present invention, the vitamin E compound content in terms of vitamin E may be, for

example, 0.1 wt% or more, preferably 0.2 wt% or more, preferably 0.5 wt% or more, preferably 1 wt% or more, more preferably 5 wt% or more, still more preferably 10 wt% or more, and is preferably 90 wt% or less, more preferably 80 wt% or less, still more preferably 60 wt% or less in the composition. In one embodiment, in the oral composition of the present invention, the vitamin E compound content in terms of vitamin E may be, for example, 0.1 to 90 wt%, preferably 0.2 to 90 wt%, 0.5 to 80 wt%, or 1 to 80 wt%, more preferably 5 to 80 wt%, still more preferably 10 to 60 wt%. The term "the vitamin E compound content" refers to the total content when the composition contains two or more vitamin E compounds. The vitamin E compound content can be measured by HPLC.

15 [0021]

In the composition of the present invention, the ergothioneine or its salt content in terms of ergothioneine per adult daily intake is preferably 1 to 100 mg, more preferably 2 to 50 mg, still more preferably 5 to 25 mg, particularly preferably 5 to 20 mg.

In the composition of the present invention, the vitamin E compound content in terms of vitamin E per adult daily intake is preferably 1 to 900 mg, more preferably 5 to 900 mg, still more preferably 10 to 500 mg, yet still more preferably 20 to 300 mg, particularly preferably 30 to 120 mg.

[0022]

Ergothioneine, its salts, and vitamin E compounds are compounds that are present in natural products and food or beverages and that have been consumed. Thus, for example, daily ingestion of ergothioneine or its salt and a vitamin E compound is less likely to cause problems in terms of safety. The present invention can provide a highly safe and easy-to-ingest composition in which the ergothioneine- or its salt-derived bitterness and the vitamin E compound-

derived odor are reduced.

[0023]

As described above, ergothioneine and its salts are known to provide various physiological activities and health functions. Known examples include antioxidant action, brain function improving effect, anti-aging action, eye disease alleviating effect, whitening effect, UV absorbing effect, melanin production suppressing effect, active oxygen species scavenging effect, elastase activity inhibitory effect, wrinkle suppressing effect, anti-skin sagging effect, and autophagy promoting effect.

Thus, the composition of the present invention can be suitably used for antioxidation, brain function improvement, anti-aging, eye disease alleviation, whitening, UV absorption, melanin production suppression, active oxygen species scavenging, elastase activity inhibition, wrinkle suppression, anti-skin sagging, and autophagy promotion.

[0024]

Vitamin E compounds are known to exert various health functions such as antioxidant action, blood flow improvement action, arteriosclerosis prevention or remedy, suppression of oxidation of blood LDL cholesterol, and prevention of red blood cell destruction. The composition of the present invention contains a vitamin E compound and thus can be used to obtain the above effects exerted by vitamin E compounds.

[0025]

The composition of the present invention is applicable for therapeutic use (medical use) and non-therapeutic use (non-medical use). The "non-therapeutic" is a concept that does not include medical activities, i.e., a concept that does not include methods of surgery, therapy, or diagnosis of humans.

The composition of the present invention can be

provided in the form of a food or beverage, a pharmaceutical product, a quasi-pharmaceutical product, feed, or the like. The composition of the present invention may be a material, preparation, or the like to be added to a food or beverage, a pharmaceutical product, a

[0026]

The composition of the present invention is a composition for oral use. Specifically, the oral composition may be a food or beverage, an oral pharmaceutical product, an oral quasi-pharmaceutical product, feed, or the like, preferably a food or beverage or an oral pharmaceutical product, more preferably a food or beverage.

[0027]

The composition of the present invention can contain optional additives and optional components in addition to ergothioneine or its salt and a vitamin E compound, as long as the effect of the present invention is not impaired. Such additives and components may be selected depending on the form of the composition, for example, and those generally usable in oral compositions such as food or beverages, pharmaceutical products, quasi-pharmaceutical products, and feed can be used. In one embodiment, the composition of the present invention may consist of ergothioneine or its salt and a vitamin E compound.

The oral composition of the present invention may contain, for example, an edible fat or oil containing no vitamin E compound. The oral composition of the present invention may be in any form such as a solid (e.g., powder, granule, or tablet), liquid, or paste.

[0028]

When the oral composition of the present invention contains an edible fat or oil (hereinafter sometimes referred to as "the component (C)"), preferably the edible

fat or oil includes the edible fat or oil containing the vitamin E compound. When the oral composition of the present invention contains the edible fat or oil, the weight of the vitamin E compound (in terms of vitamin E) is preferably 5 to 90 wt%, more preferably 10 to 80 wt% relative to the weight of the edible fat or oil (component (C)) in the composition, which is taken as 100 wt%.

When the oral composition of the present invention contains the edible fat or oil, the weight ratio ((C)/(A)) of the edible fat or oil (component (C)) to (A) ergothioneine or its salt (component (A)) in terms of ergothioneine in the composition may be, for example, 3 to 200, 4 to 150, or 5 to 100, preferably 5 to 90, more preferably 5 to 50, still more preferably 5 to 40.

The weight of the edible fat or oil is the total weight when the composition contains two or more edible fats or oils. The weight of the edible fat or oil containing the vitamin E compound includes the weight of the vitamin E compound.

In one embodiment, when the composition of the present invention contains the edible fat or oil containing the vitamin E compound, the weight ratio (edible fat or oil containing the vitamin E compound/(A)) of the edible fat or oil containing the vitamin E compound to (A) ergothioneine or its salt (component (A)) in terms of ergothioneine in the composition is, for example, preferably 3 to 90, more preferably 4 to 50, still more preferably 5 to 40.

[0029]

For example, when the composition of the present invention is provided as a food or beverage, components usable in food or beverages (e.g., food materials and optional food additives) can be added to ergothioneine or its salt and a vitamin E compound to provide various food or beverages. The food or beverage is not limited.

Examples thereof include general food or beverages, health

foods, health supplements, health drinks, foods with function claims, foods for specified health uses, and foods for the sick. The health foods, health supplements, foods with function claims, foods for specified health uses, and
5 the like can be used in various forms of preparations such as fine granules, tablets, granules, powders, capsules, chewable tablets, dry syrups, syrups, liquid agents, beverages, energy drinks, and liquid foods.

[0030]

10 When the composition of the present invention is provided as a pharmaceutical product or a quasi-pharmaceutical product, for example, a pharmacologically acceptable carrier, an optional additive, or the like can be added to ergothioneine or its salt and a vitamin E
15 compound to provide various dosage forms of pharmaceutical products or quasi-pharmaceutical products. Such a carrier, additive, or the like may be any pharmacologically acceptable one that can be used in pharmaceutical products or quasi-pharmaceutical products. Examples thereof include
20 excipients, binders, disintegrants, lubricants, antioxidants, and colorants. One or more of these can be used. Examples of the dosage form for oral administration of pharmaceutical products or quasi-pharmaceutical products include liquids, tablets, powders, fine granules, granules,
25 sugar-coated tablets, capsules, suspensions, emulsions, and chewable tablets.

[0031]

When the composition of the present invention is provided as feed, ergothioneine or its salt and at least
30 one vitamin E compound are simply added to feed. The feed includes feed additives. Examples of the feed include livestock feed for animals such as cows, pigs, chickens, sheep, and horses; feed for small animals such as rabbits, rats, and mice; and pet food for animals such as dogs,
35 cats, and birds.

[0032]

The composition of the present invention may be ingested by or administered to any subject (administration subject). The administration subject is preferably a human
5 or non-human mammal, more preferably a human.

[0033]

The oral composition of the present invention may be produced by any method, such as one that includes adding (A) ergothioneine or its salt and (B) at least one vitamin
10 E compound in a weight ratio in the above range to a composition. In preparation of the oral composition containing ergothioneine or its salt and (B) at least one vitamin E compound, the weight ratio ((B)/(A)) of the component (B) (in terms of vitamin E) to the component (A)
15 (in terms of ergothioneine) is adjusted to 1 to 27, thus giving an oral composition in which the ergothioneine- or its salt-derived bitterness and the vitamin E compound-derived odor are reduced. The weight ratio can be adjusted by adjusting the content of each component to be added. In
20 production of the oral composition, the edible fat or oil containing the vitamin E compound described above may be added. Alternatively, for example, a solution of the vitamin E compound in an edible fat or oil containing no vitamin E compound can be added to a composition. In one
25 embodiment, a part or all of at least one vitamin E compound may be added as a part of the edible fat or oil to the oral composition. When the edible fat or oil containing the vitamin E compound is used, the vitamin E compound content of the edible fat or oil is, for example,
30 preferably 10 to 90 wt%, more preferably 40 to 90 wt%, still more preferably 50 to 80 wt%. When the edible fat or oil (component (C)) is used, the weight ratio ((C)/(A)) of the edible fat or oil (component (C)) to (A) ergothioneine or its salt (component (A)) in terms of ergothioneine is
35 preferably 2 to 40, more preferably 3 to 30, still more

preferably 4 to 20.

[0034]

The present invention also encompasses the following method:

5 a method of reducing bitterness and odor of an oral composition containing (A) ergothioneine or its salt (component (A)) and (B) at least one vitamin E compound (component (B)), the bitterness being derived from the component (A), the odor being derived from the component
10 (B), the method including adjusting a weight ratio ((B)/(A)) of the component (B) (in terms of vitamin E) to the component (A) (in terms of ergothioneine) to 1 to 27.

In preparation of the oral composition, the weight ratio ((B)/(A)) of the component (B) (in terms of vitamin
15 E) to the component (A) (in terms of ergothioneine) is adjusted to the above range, thus giving an oral composition in which the ergothioneine- or its salt-derived bitterness and the vitamin E compound-derived odor are reduced. The weight ratio can be adjusted by, for example,
20 adding the component (A) and/or the component (B).

[0035]

The above method makes it possible to effectively reduce the ergothioneine- or its salt-derived bitterness and the vitamin E compound-derived odor. The taste of the
25 oral composition can be improved by reducing the ergothioneine- or its salt-derived and vitamin E compound-derived unpleasant aroma and flavor (bitterness and odor).

In the above method, the ergothioneine or its salt, vitamin E compound, and preferred embodiments thereof are
30 the same as those of the oral composition of the present invention described above. A preferred range of the weight ratio ((B)/(A)) of the component (B) (in terms of vitamin E) to the component (A) (in terms of ergothioneine) is also the same as that in the oral composition of the present
35 invention.

[0036]

The above method can reduce the ergothioneine- or its salt-derived bitterness and the vitamin E compound-derived odor by itself, but may be combined with a different
5 bitterness reducing method and/or a different odor reducing method.

Examples of the different bitterness reducing method or the different odor reducing method include a formulation method including adding a sweetener or flavoring agent to a
10 bitter or odorous component, a formulation method including sugar-coating a bitter or odorous component, and a formulation method including encapsulating a bitter or odorous component.

[0037]

15 Vitamin E compounds are useful for reducing the bitterness of ergothioneine or its salt. The present invention also encompasses use of (B) at least one vitamin E compound for reducing the bitterness derived from (A) ergothioneine or its salt. The amount of the vitamin E
20 compound to be used is preferably an amount at which the weight ratio ((B)/(A)) of (B) vitamin E compound (in terms of vitamin E) to (A) ergothioneine or its salt (in terms of ergothioneine) is 1 or more, more preferably an amount at which the above weight ratio is 1 to 27.

25 [0038]

Ergothioneine and its salts are useful for reducing the odor of vitamin E compounds. The present invention also encompasses use of (A) ergothioneine or its salt for reducing the odor of (B) vitamin E compound. The amount of
30 ergothioneine or its salt to be used is preferably an amount at which the weight ratio ((B)/(A)) of (B) vitamin E compound (in terms of vitamin E) to (A) ergothioneine or its salt (in terms of ergothioneine) is 1 or more, more preferably an amount at which the above weight ratio is 1
35 to 27.

[0039]

The numerical range defined by the lower limit and the upper limit herein, i.e., "the lower limit to the upper limit", includes the lower limit and the upper limit. For example, the range defined by "1 to 2" means 1 or more and 2 or less, with 1 and 2 being inclusive. Herein, the range may be any combination of any upper limit and any lower limit.

10

EXAMPLES

[0040]

The present invention is described in further detail below with reference to Examples. The present invention is not limited to these Examples.

15

[0041]

The following raw materials were used in an evaluation test described below.

(A) Ergothioneine: raw material containing 99.5% L-ergothioneine

20

(C1) Vitamin E compound-containing raw material: vegetable oil mainly from soybeans, containing 30 wt% d- α -tocopherol and 20 wt% d- γ -tocopherol (vitamin E content: 50 wt%).

(C2) Vitamin E compound-containing raw material: vegetable oil mainly from soybeans, containing 60 wt% d- α -tocopherol (vitamin E content: 60 wt%)

25

The raw materials (C1) and (C2) each contain vitamin E as a sole vitamin E compound.

[0042]

<Example 1>

30

The raw materials (A) and (C1) in amounts shown in Table 1 were mixed to prepare oral compositions each containing ergothioneine and vitamin E (samples 1-1 to 1-5). The samples obtained were subjected to sensory evaluation by three panelists expertized in sensory evaluation.

35

Table 1 shows the (B) vitamin E content and the weight ratio ((B)/(A)) of (B) vitamin E to (A) ergothioneine in the samples 1-1 to 1-5.

[0043]

5 Each panelist placed the whole amount of the composition prepared (for example, 20 mg in the case of the sample 1-1) directly on the tongue and evaluated the intensity of the ergothioneine-derived bitterness and the intensity of the vitamin E compound-derived odor based on
10 the following criteria.

[0044]

(Evaluation criteria for ergothioneine-derived bitterness)

15 The ergothioneine-derived bitterness was evaluated with 1 to 5 points (5-point scale) based on the following criteria. Five points were given as reference points to the intensity of the bitterness of (A) ergothioneine (10 mg) described above (control 1). Evaluation results by the three panelists were collected. Table 1 shows the average results (points).

20 5 points: The ergothioneine-derived bitterness is strongly felt.

4 points: The ergothioneine-derived bitterness is felt.

3 points: The ergothioneine-derived bitterness is slightly felt.

25 2 points: The ergothioneine-derived bitterness is not much felt.

1 point: The ergothioneine-derived bitterness is not felt.

[0045]

(Evaluation criteria for vitamin E compound-derived odor)

30 The vitamin E compound-derived odor was evaluated by giving 1 to 5 points with 0.5 increments (9-point scale) based on the following criteria. Five points were given as reference points to the intensity of the vitamin E compound-derived odor that was felt when (C1) vitamin E
35 compound-containing raw material (10 mg, containing 5 mg

vitamin E) described above was placed on the tongue (control 2). Evaluation results by the three panelists were collected. Table 1 shows the average results (points).

5 5 points: The vitamin E compound-derived odor is strongly felt.

4 points: The vitamin E compound-derived odor is felt.

3 points: The vitamin E compound-derived odor is slightly felt.

10 2 points: The vitamin E compound-derived odor is not much felt.

1 point: The vitamin E compound-derived odor is not felt.
[0046]

15 When the evaluation average of the ergothioneine-derived bitterness and the evaluation average of the vitamin E compound-derived odor were both less than 4.0 points, it was evaluated that the ergothioneine-derived bitterness and the vitamin E compound-derived odor were reduced.

20 [0047]

[Table 1]

	Amount (mg)		(B) Vitamin E content (mg)	Ratio (B)/(A)	Evaluation results	
	(A) Ergothioneine	(C1) Vitamin E compound-containing raw material			Bitterness derived from (A)	Odor derived from (B)
Control 1	10	0	0	0	5.0	—
Sample 1-1	10	10	5	0.5	4.0	1.0
Sample 1-2	10	50	25	2.5	3.2	2.0
Sample 1-3	10	200	100	10	2.0	2.7
Sample 1-4	10	500	250	25	1.3	3.8
Sample 1-5	20	150	75	3.75	2.7	2.7
Control 2	0	10	5	—	—	5.0

[0048]

<Example 2>

25 The raw materials (A) and (C2) in amounts shown in Table 2 were mixed to prepare oral compositions each containing ergothioneine and vitamin E (samples 2-1 to 2-5). The samples obtained were subjected to sensory evaluation by three panelists expertized in sensory
30 evaluation.

Table 2 shows the (B) vitamin E content and the weight ratio ((B)/(A)) of (B) vitamin E to (A) ergothioneine in the samples 2-1 to 2-5.

[0049]

5 Each panelist placed the whole amount of the composition prepared (for example, 20 mg in the case of the sample 2-1) directly on the tongue and evaluated the intensity of the ergothioneine-derived bitterness and the intensity of the vitamin E compound-derived odor based on
10 the following criteria.

[0050]

(Evaluation criteria for ergothioneine-derived bitterness)

 The ergothioneine-derived bitterness was evaluated based on the same criteria used in Example 1. Evaluation
15 results by the three panelists were collected. Table 2 shows the average results (points).

[0051]

(Evaluation criteria for vitamin E compound-derived odor)

 The vitamin E compound-derived odor was evaluated by
20 giving 1 to 5 points with 0.5 increments (9-point scale) based on the following criteria. Five points were given as reference points to the intensity of the vitamin E compound-derived odor that was felt when (C2) vitamin E compound-containing raw material (10 mg, containing 6 mg
25 vitamin E) described above was placed on the tongue (control 3). Evaluation results by the three panelists were collected. Table 2 shows the average results (points).

5 points: The vitamin E compound-derived odor is strongly
30 felt.

4 points: The vitamin E compound-derived odor is felt.

3 points: The vitamin E compound-derived odor is slightly felt.

2 points: The vitamin E compound-derived odor is not much
35 felt.

1 point: The vitamin E compound-derived odor is not felt.
[0052]

When the evaluation average of the ergothioneine-derived bitterness and the evaluation average of the vitamin E compound-derived odor were both less than 4.0 points, it was evaluated that the ergothioneine-derived bitterness and the vitamin E compound-derived odor were reduced.

[0053]

[Table 2]

	Amount (mg)		(B) Vitamin E content (mg)	Ratio (B)/(A)	Evaluation results	
	(A) Ergothioneine	(C2) Vitamin E compound-containing raw material			Bitterness derived from (A)	Odor derived from (B)
Control 1	10	0	0	0	5.0	—
Sample 2-1	10	10	6	0.6	4.3	1.0
Sample 2-2	10	50	30	3	2.7	2.0
Sample 2-3	10	100	60	6	2.0	2.7
Sample 2-4	10	500	300	30	1.7	4.3
Sample 2-5	20	80	48	2.4	3.0	2.0
Control 3	0	10	6	-	-	5.0

[0054]

The ergothioneine-derived bitterness that stings the tongue was felt strong when no vitamin E compound was added (control 1). The vitamin E compound-derived odor was strongly felt when only the vitamin E compound-containing raw material was added (controls 2 and 3). Both the ergothioneine-derived bitterness and the vitamin E compound-derived odor were effectively alleviated in the samples 1-2 to 1-5, 2-2 to 2-3, and 2-5 in which the weight ratio ((B)/(A)) of (B) vitamin E compound (in terms of vitamin E) to (A) ergothioneine was in the range of 1 to 27.

CLAIMS

Claim 1. An oral composition comprising: a component (A); and a component (B) recited below,

5 (A) ergothioneine or its salt; and

(B) at least one vitamin E compound,

wherein a weight ratio (B)/(A) of the component (B) in terms of vitamin E to the component (A) in terms of ergothioneine is 1 to 27.

10

Claim 2. The composition according to claim 1,

wherein the weight ratio (B)/(A) of the component (B) in terms of vitamin E to the component (A) in terms of ergothioneine is 2 to 26.

15

Claim 3. The composition according to claim 1 or 2,

wherein the component (B) is at least one of tocopherol or tocotrienol.

20

Claim 4. The composition according to claim 1 or 2,

wherein the component (B) is at least one of α -tocopherol or γ -tocopherol.

25

Claim 5. The composition according to claim 1 or 2,

wherein the composition contains an edible fat or oil.

30

Claim 6. The composition according to claim 1 or 2,

wherein the component (B) is derived from a vegetable fat or oil.

Claim 7. The composition according to claim 1 or 2,

wherein the composition is a food or beverage.

35

Claim 8. A method of reducing bitterness and odor of

an oral composition containing a component (A) and a component (B) recited below:

(A) ergothioneine or its salt; and

(B) at least one vitamin E compound,

5 the bitterness being derived from the component (A),
the odor being derived from the component (B), the method comprising:

adjusting a weight ratio (B)/(A) of the component (B) in terms of vitamin E to the component (A) in terms of
10 ergothioneine to 1 to 27.