DESCRIPTION

TITLE OF INVENTION: ORAL COMPOSITION, AND METHOD FOR SUPPRESSING BITTERNESS DERIVED FROM ERGOTHIONEINE AND ODOR DERIVED FROM CEREAL OIL OR γ-ORYZANOL

TECHNICAL FIELD

[0001]

The present invention relates to an oral composition containing ergothioneine or its salt and grain oil. The present invention also relates to an oral composition containing ergothioneine or its salt and γ-oryzanol.

The present invention further relates to a method of reducing ergothioneine-derived bitterness and grain oil- or γ-oryzanol derived odor.

BACKGROUND ART

[0002]

Ergothioneine is one of the hydrophilic sulfur-containing amino acids and is known to have various physiological 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 activities, has been drawing attention recently for its use for food, cosmetics, and pharmaceutical products.

[0003]

γ-Oryzanol is a generic term for esters in which ferulic acid is condensed with a sterol, and is one component contained in grain bran, germs, and the like. γ-Oryzanol and grain oil containing the same are known to have physiological activities such as antioxidant action, cholesterol reducing action, anti-inflammatory action, and anti-allergy action, and have been widely used in food or

beverages, pharmaceutical products, cosmetics, feed, and the like.

CITATION LIST

- Patent Literature

[0004]

Patent Literature 1: JP 2017-218431 A

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 γ-oryzanol and grain oil containing the same 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 γ-oryzanol or grain oil containing the same. However, ergothioneine and its salts have a unique aroma and flavor, particularly, an unpleasant bitterness (bitter taste) that stings the tongue, thus leaving room for improvement in providing an oral composition containing ergothioneine or its salt.

Grain oil is an oil obtained from grain bran and/or germs, and grain oil containing γ-oryzanol has an unpleasant aroma and flavor, specifically, a bran odor. The odor sometimes poses a problem when grain oil is added to an oral composition.

[0006]

The present invention aims to provide an oral composition containing ergothioneine or its salt and grain oil or γ-oryzanol, in which ergothioneine- or its salt-derived bitterness and grain oil- or γ-oryzanol-derived

odor are reduced. The present invention also relates to a method of reducing ergothioneine- or its salt-derived bitterness and grain oil- or γ-oryzanol-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 γ-oryzanol or grain oil containing the same in a specific ratio can reduce the ergothioneine- or its salt-derived bitterness and the grain oil- or γ-oryzanol-derived odor.

[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,

(A) ergothioneine or its salt; and (B) grain oil, wherein the grain oil contains γ-oryzanol as a component (B'), and a weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine is 0.3 to 10.

(2) The composition according to (1) above, wherein the grain is rice.

(3) The composition according to (1) or (2) above, wherein the grain oil is rice germ oil.

(4) An oral composition containing a component (A) and a component (B') recited below,

(A) ergothioneine or its salt; and (B') γ-oryzanol, wherein a weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine is 0.3 to 10.

(5) The composition according to any one of (1) to (4), wherein the weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A)

in terms of ergothioneine is 0.4 to 5.

(6) The composition according to any one of (1) to (5) above, wherein the composition is a food or beverage.

(7) 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) grain oil, the bitterness being derived from the component (A), the odor being derived from the component (B), the grain oil containing γ-oryzanol as a component (B'), the method including: adjusting a weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine to 0.3 to 10.

(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') γ-oryzanol, 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 cycloartenyl ferulate to the component (A) in terms of ergothioneine to 0.3 to 10.

- Advantageous Effects of Invention

[0009]

The present invention can provide an oral composition containing ergothioneine or its salt and grain oil or γ-oryzanol, in which the ergothioneine- or its salt-derived bitterness and the grain oil- or γ-oryzanol-derived odor are reduced. The present invention can also provide a method of reducing the ergothioneine- or its salt-derived bitterness and the grain oil- or γ-oryzanol-derived odor.

DESCRIPTION OF EMBODIMENTS

[0010]

An oral composition according to a first invention contains (A) ergothioneine or its salt (component (A)) and

(B) grain oil (component (B)), wherein the grain oil contains (B') γ-oryzanol (component (B')), and the weight ratio ((B')/(A)) of the component (B') (in terms of cycloartenyl ferulate) to the component (A) (in terms of ergothioneine) is 0.3 to 10.

[0011]

An oral composition according to a second invention contains (A) ergothioneine or its salt (component (A)) and (B') γ-oryzanol (component (B')), wherein the weight ratio ((B')/(A)) of the component (B') (in terms of cycloartenyl ferulate) to the component (A) (in terms of ergothioneine) is 0.3 to 10.

[0012]

When a description is given with a simple term "the present invention" as used herein, it means that the description refers to features common to the first and second inventions.

[0013]

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.

[0014]

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 mushurooms (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.

[0015]

Any grain oil that contains γ-oryzanol can be used. Examples of the grain include rice, corn, and wheat. A preferred grain is rice.

The type of rice is not limited. Examples include glutinous rice, non-glutinous rice, red rice, black rice of the Japonica, Indica, and Javanica species.

The grain oil is preferably rice germ oil. In one preferred embodiment, the composition according to the first invention contains rice germ oil.

The present invention can effectively reduce the rice germ oil-derived odor.

[0016]

The grain oil may be produced by any method. Examples include a method that includes squeezing grain bran and/or germ and a method that includes extracting from grain bran and/or germ using a solvent. A commercial grain oil can also be used.

[0017]

γ-Oryzanol is a generic term for esters in which ferulic acid is condensed with a sterol and is one of components contained in grain bran. In the present invention, γ-oryzanol may be composed of one type of compound or two or more types of compounds.

γ-Oryzanol may be composed of any sterol. Examples include α-sitosterol, β-sitosterol, stigmasterol, campesterol, α-sitostanol, β-sitostanol, stigmastanol, campestanol, brassicasterol, fucosterol, isofucosterol, spinasterol, avenasterol, cycloartenol, 24-methylenecycloartanol, cyclobranol, cycloartanol, cyclosadol, cyclolaudenol, butyrosperimol, and parkeol.

The sterol is preferably cycloartenol, 24-methylenecycloartanol, β-sitosterol, or campesterol.

In one preferred embodiment of the present invention, γ-oryzanol is at least one selected from the group consisting of cycloartenyl ferulate, 24-methylene cycloartanyl ferulate, β-sitosterol ferulate, and campesterol ferulate.

[0018]

γ-Oryzanol for use in the present invention is not limited in any way by its form, production method, or the like. A chemically synthesized γ-oryzanol may be used, or a naturally extracted and purified γ-oryzanol may be used.

Specific examples of the γ-oryzanol production method include a method that includes extracting from grains and purifying the extract. Commercial γ-oryzanol can also be used.

[0019]

In the oral composition of the present invention, the weight ratio ((B')/(A)) of the component (B') (in terms of cycloartenyl ferulate) to the component (A) (in terms of ergothioneine) is 0.3 to 10. Ergothioneine and its salts have a bitterness that stings the tongue. Grain oil and γ-oryzanol also have a distinctive odor. When the weight ratio ((B')/(A)) of the component (B') (in terms of cycloartenyl ferulate) to the component (A) (in terms of ergothioneine) is in the above range, the ergothioneine- or its salt-derived bitterness and the grain oil- or γ-oryzanol-derived odor can be reduced. This facilitates continuous intake of ergothioneine or its salt and grain oil or γ-oryzanol.

The weight ratio is more preferably 0.4 to 7, still more preferably 0.5 to 5, yet still more preferably 0.6 to 4, particularly preferably 0.7 to 3.

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 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 cycloartenyl ferulate or its similar expression, in the case where γ-oryzanol is cycloartenyl ferulate, the expression refers to its content, whereas in the case where γ-oryzanol is an ester of a sterol other than cycloartenol and ferulic acid, the expression refers to a value obtained by multiplying the molar number of the ester by the molar weight of cycloartenyl ferulate.

[0020]

In the composition of the present invention, the compound (A) (ergothioneine or its salt) content is not

limited and may be set according to the form of the composition or the like, as long as the weight ratio of the component (B') to the component (A) is in the above range.

In the composition of the present invention, the component (A) 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, the component (A) 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% in the composition of the present invention. The ergothioneine content can be measured by high-performance liquid chromatography (HPLC).

[0021]

In the oral composition of the present invention, the component (B') (γ-oryzanol) content is not limited and can be set according to the form of the composition or the like, as long as the weight ratio of the component (B') to the component (A) is in the above range. In the oral composition of the present invention, the total component (B') content in terms of cycloartenyl ferulate is, for example, preferably 0.1 wt% or more, more preferably 1 wt% or more, still more preferably 2 wt% or more, particularly preferably 5 wt% or more, and is preferably 90 wt% or less, more preferably 70 wt% or less, still more preferably 50 wt% or less, particularly preferably 40 wt% or less in the composition. In one embodiment, the total component (B') content in terms of cycloartenyl ferulate is preferably 0.1 to 90 wt%, more preferably 1 to 70 wt%, still more preferably 2 to 50 wt%, particularly preferably 5 to 40 wt%. The total content refers to the total content of two or more types of γ-oryzanol when the composition contains two or more types of γ-oryzanol. The component (B')

content can be measured based on the absorbance at 315 nm of a solution of γ-oryzanol contained in the composition in a solvent.

In measurement of the component (B') content, preferably, the absorbance at 315 nm is measured after γ-oryzanol is purified from the composition by a known method as needed. The solvent is preferably heptane or hexane.

[0022]

In the composition according to the first invention, the component (B) (grain oil) content is not limited and can be set according to the form of the composition or the like, as long as the weight ratio of the component (B') to the component (A) is in the above range.

In the composition of the present invention, the component (B) content is preferably 10 to 90 wt%, more preferably 20 to 80 wt%, still more preferably 30 to 70 wt%. The content refers to the total content of two or more types of grain oil when the composition contains two or more types of grain oil.

[0023]

In the composition of the present invention, the component (A) 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 component (B') content in terms of cycloartenyl ferulate per adult daily intake is preferably 1 to 500 mg, more preferably 1 to 250 mg, still more preferably 1 to 100 mg.

[0024]

Ergothioneine, its salts, grain oil, and γ-oryzanol 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 grain oil or γ-oryzanol 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 grain oil- or γ-oryzanol-derived odor are reduced.

[0025]

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.

[0026]

γ-Oryzanol is known to exert various health functions such as antioxidant action, cholesterol reducing action, anti-inflammatory action, and anti-allergy action.

The composition of the present invention contains at least one type of γ-oryzanol and thus can be used to obtain the above effects exerted by γ-oryzanol.

[0027]

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 quasi-pharmaceutical product, feed, or the like.

[0028]

The composition of the present invention is an oral composition. 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.

[0029]

The composition of the present invention can contain optional additives and optional components in addition to ergothioneine or its salt and grain oil or γ-oryzanol, 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. When the composition of the present invention is provided as a food or beverage, a pharmaceutical product, a quasi-pharmaceutical product, feed, or the like, its production method is not limited, and a usual method can be used for production. In one embodiment, the composition of the present invention may consist of ergothioneine or its salt and grain oil containing γ-oryzanol.

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.

[0030]

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 grain oil or γ-oryzanol 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 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.

[0031]

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 grain oil or γ-oryzanol 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 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, sugar-coated tablets, capsules, suspensions, emulsions, and chewable tablets.

[0032]

When the composition of the present invention is

provided as feed, ergothioneine or its salt and at least one selected from the group consisting of grain oil and γ-oryzanol 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, cats, and birds.

[0033]

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

[0034]

The present invention also encompasses the following method:

a method of reducing bitterness and odor of an oral composition containing (A) ergothioneine or its salt and (B) grain oil, the bitterness being derived from the component (A), the odor being derived from the component (B), the grain oil containing γ-oryzanol as a component (B'), the method including: adjusting a weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine to 0.3 to 10.

[0035]

The present invention also encompasses the following method:

a method of reducing bitterness and odor of an oral composition containing (A) ergothioneine or its salt and (B') γ-oryzanol, 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 cycloartenyl ferulate to the component (A) in terms of ergothioneine to 0.3 to 10.

[0036]

The weight ratio ((B')/(A)) can be adjusted by adjusting the amount of each component to be added in preparation of the oral composition.

[0037]

The above methods make it possible to effectively reduce the ergothioneine- or its salt-derived bitterness and the grain oil- or γ-oryzanol-derived odor. The taste of the oral composition can be improved by reducing the unpleasant aroma and flavor (bitterness and odor) derived from ergothioneine or its salt and grain oil or γ-oryzanol.

In the above methods, the ergothioneine or its salt and grain oil or γ-oryzanol and preferred embodiments thereof are 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 cycloartenyl ferulate) to the component (A) (in terms of ergothioneine) is also the same as that in the oral composition of the present invention.

[0038]

Each of the above methods can reduce the ergothioneine- or its salt-derived bitterness and the grain oil- or γ-oryzanol-derived odor by itself, but may be combined with a different 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 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.

[0039]

Grain oil and γ-oryzanol are useful for reducing the bitterness of ergothioneine or its salt. The present

invention also encompasses use of (B) grain oil for reducing the bitterness derived from (A) ergothioneine- or its salt. The amount of the grain oil to be used is preferably an amount at which the weight ratio ((B')/(A)) of (B') γ-oryzanol to (A) ergothioneine or its salt (in terms of ergothioneine) is 0.3 or more, more preferably an amount at which the above weight ratio is 0.3 to 10.

[0040]

Ergothioneine and its salts are useful for reducing the odor of grain oil or γ-oryzanol. The present invention also encompasses use of (A) ergothioneine or its salt for reducing the odor of (B) grain oil or γ-oryzanol. The amount of ergothioneine or its salt to be used is preferably a weight at which the weight ratio ((B')/(A)) of (B') γ-oryzanol to (A) ergothioneine or its salt (in terms of ergothioneine) is 0.3 or more, more preferably an amount at which the above weight ratio is 0.3 to 10.

[0041]

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.

EXAMPLES

[0042]

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

[0043]

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

(A) Ergothioneine: raw material containing 100% L-

ergothioneine
(B) Gain oil: rice germ oil (γ-oryzanol content (in terms of cycloartenyl ferulate): 25 wt%)
[0044]
<Example 1>
The raw materials (A) and (B) in amounts shown in Table 1 were mixed to prepare oral compositions each containing ergothioneine and grain oil (samples 1 to 7). The samples obtained were subjected to sensory evaluation by three panelists expertized in sensory evaluation.
Table 1 shows the (B) rice germ oil content, the (B') γ-oryzanol content (in terms of cycloartenyl ferulate), and the weight ratio ((B')/(A)) of (B') γ-oryzanol to (A) ergothioneine in the samples 1 to 7.
[0045]
Each panelist placed the whole amount of the composition prepared (for example, 20 mg in total including 10 mg ergothioneine and 10 mg rice germ oil in the case of the sample 1) directly on the tongue and evaluated the intensity of the ergothioneine-derived bitterness and the intensity of the γ-oryzanol-containing rice germ oil-derived odor (bran odor) based on the following criteria.
[0046]
(Evaluation criteria for ergothioneine-derived bitterness)
The ergothioneine-derived bitterness was evaluated with 1 to 5 points (5-point scale) described below. 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).
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.
2 points: The ergothioneine-derived bitterness is not much felt.
1 point: The ergothioneine-derived bitterness is not felt.

[0047]
(Evaluation criteria for γ-oryzanol-containing rice germ oil-derived odor)

The γ-oryzanol-containing rice germ oil-derived odor was evaluated by giving 1 to 5 points (5-point scale) described below. Five points were given as reference points to the intensity of the rice germ oil-derived odor that was felt when (B) rice gem oil (10 mg) 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 points: The rice germ oil-derived odor is strongly felt.
4 points: The rice germ oil-derived odor is felt.
3 points: The rice germ oil-derived odor is slightly felt.
2 points: The rice germ oil-derived odor is not much felt.
1 point: The rice germ oil-derived odor is not felt.

[0048]

The “Bitterness” in Table 1 refers to the ergothioneine-derived bitterness, and the “Odor” refers to the γ-oryzanol-containing rice germ oil-derived odor.

When the evaluation average of the ergothioneine-derived bitterness and the evaluation average of the γ-oryzanol-containing rice germ oil-derived odor were both less than 4.0 points, it was evaluated that the ergothioneine-derived bitterness and the rice germ oil- or γ-oryzanol-derived odor were reduced.

[0049]
[Table 1]

	Amount added (mg)		(B') γ-Oryzanol content (mg)	Ratio	Evaluation results (points)	
	(A) Ergothioneine	(B) Rice germ oil		(B')/(A)	Bitterness	Odor
Control 1	10	0	—	0	5.0	1.0
Sample 1	10	10	2.5	0.25	4.3	1.0
Sample 2	10	12	3	0.3	3.7	1.0
Sample 3	10	20	5	0.5	3.3	1.0
Sample 4	10	50	12.5	1.25	1.3	2.0
Sample 5	10	100	25	2.5	1.0	2.7
Sample 6	10	1000	250	25	1.0	4.3
Sample 7	20	40	10	0.5	2.7	1.7
Control 2	0	10	2.5	—	1.0	5.0

[0050]

The ergothioneine-derived bitterness that stings the tongue was felt strong when no γ-oryzanol-containing rice germ oil was added (control 1). The rice germ oil- or γ-oryzanol-derived odor was strongly felt when only the γ-oryzanol-containing rice germ oil was used (control 2). Both the ergothioneine-derived bitterness and the rice germ oil- or γ-oryzanol-derived odor were effectively alleviated in the samples 2 to 5 and 7 in which the weight ratio ((B')/(A)) of (B') γ-oryzanol (in terms of cycloartenyl ferulate) to (A) ergothioneine was in the range of 0.3 to 10.

CLAIMS

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

(A) ergothioneine or its salt; and

(B) grain oil,

wherein the grain oil contains γ-oryzanol as a component (B'), and

a weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine is 0.3 to 10.

Claim 2. The composition according to claim 1, wherein the grain is rice.

Claim 3. The composition according to claim 1 or 2, wherein the grain oil is rice germ oil.

Claim 4. An oral composition comprising a component (A) and a component (B') recited below:

(A) ergothioneine or its salt; and

(B') γ-oryzanol,

wherein a weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine is 0.3 to 10.

Claim 5. The composition according to claim 1 or 2, wherein the weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine is 0.4 to 5.

Claim 6. The composition according to claim 1 or 2, wherein the composition is a food or beverage.

Claim 7. 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) grain oil,

the bitterness being derived from the component (A), the odor being derived from the component (B), the grain oil containing γ-oryzanol as a component (B'), the method comprising:

adjusting a weight ratio (B')/(A) of the component (B') in terms of cycloartenyl ferulate to the component (A) in terms of ergothioneine to 0.3 to 10.

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') γ-oryzanol,

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 cycloartenyl ferulate to the component (A) in terms of ergothioneine to 0.3 to 10.