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(54) Title: ANTI-PEPTIC ULCER COMPOSITION IN THE FORM OF CLEAR LIQUID COMPRISING GLUTINOUS RICE EXTRACT AND TEA EXTRACT

(57) Abstract: The present invention relates to an anti-peptic ulcer composition in the form of clear liquid comprising glutinous rice extract and tea extract as active ingredients, wherein the extracts are dissolved in the composition. The product of present invention shows not only an excellent anti-ulcer activity but also improved stability for the anti-ulcer activity as compared with the similar products of prior art. Accordingly, the present invention provides an anti-peptic ulcer drink using glutinous rice which is stable as well as safe and convenient for drinking.



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ANTI-PEPTIC ULCER COMPOSITION IN THE FORM OF CLEAR LIQUID COMPRISING GLUTINOUS RICE EXTRACT AND TEA EXTRACT

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Technical Field

The present invention relates to an anti-peptic ulcer composition in the form of clear liquid comprising glutinous rice extract and tea extract as active ingredients, wherein the extracts are dissolved in the composition.

10

Background Art

The major objectives of medical therapy of peptic ulcer are to relieve pain, heal ulcer itself, and prevent recurrence of ulcer and complications. For these purposes, different kinds of drugs including antacids, H₂-receptor antagonists, proton pump inhibitors, and anti-*Helicobacter pylori* preparations are commonly used. However, careful attention is required since prolonged and regular use of these drugs may induce various side effects.

Meanwhile, the present inventors have discovered that the water extract of glutinous rice shows excellent effects not only to suppress the occurrence of gastric ulcer but also to heal the developed peptic ulcer. Since the extract is very safe, cheap and easily prepared, it can be a useful anti-ulcer food or drug. Therefore, we have reported patent publications regarding the anti-ulcer compositions comprising glutinous rice extract (Korea Patent Nos. 0208969 and 0253740 by Ahn et al.). However, since the compositions disclosed in these patents were the form of suspension, they had several problems : e.g., one might feel foreign body sensation on drinking and the addition of an emulsifier was needed to prevent precipitation.

25

The present inventors have studied to solve the above-mentioned problems, and found that a composition in the form of clear liquid comprising

glutinous rice extract or glutinous rice extract plus fresh ginseng extract, which was prepared by heating at a suitable temperature and filtering, maintained most of the anti-ulcer activity shown by the suspension of glutinous rice extract (Korea Patent Application Nos. 2001-65891 and 2004-47946 by Ahn et al.).

5 However, since the composition was not very stable, its anti-ulcer activity declined at significant rates on storage. Accordingly, there was a need for development of new clear liquid anti-ulcer preparations with improved stability, which comprised glutinous rice extract as an active ingredient.

10 **Disclosure of Invention**

Technical Problem

The present inventors have studied to solve the above-mentioned problems and found that a clear liquid composition comprising glutinous rice extract and tea extract, which was prepared by heat treatment and filtration,
15 showed quite improved stability for the anti-ulcer activity as compared with the similar products of prior art.

The purpose of the present invention is to provide an anti-peptic ulcer drink using glutinous rice which is stable as well as safe and convenient for drinking.

20 **Technical Solution**

The present invention relates to an anti-peptic ulcer composition in the form of clear liquid comprising glutinous rice extract and tea extract as active ingredients, wherein the extracts are dissolved in the composition.

The glutinous rice extract used in the present invention can be prepared
25 according to the method described in Korea Patent No. 0208969 and 0253740; and Korea Patent Application No. 2004-47946 by Ahn et al. For example, after glutinous rice powder is agitated vigorously in water using a vortex mixer and the mixture is centrifuged, the resulting supernatant can be used. Further, the supernatant is kept at room temperature for 12 to 24 hours until precipitation

occurs and the suspension of precipitates can be used as glutinous rice extract, too.

Tea used in the present invention is a green tea, black tea, or oolong tea. To obtain tea extract, tea is heated in 50 to 200 volumes (w/v) of boiling water for 5 to 30 minutes and filtered. The filtrate may be used as tea extract *per se* or after it is freeze dried.

The composition of present invention may be prepared by the following steps: a) heating the mixture comprising glutinous rice extract and tea extract to dissolve active anti-ulcer components, and b) filtering to obtain a clear solution.

10 The glutinous rice extract contains proteins in a concentration of 0.1 - 5 mg per 1 ml of the glutinous rice extract (preferably 0.4 - 1.6 mg/ml). Also, the tea extract is contained in a concentration of 0.25 - 10 mg/ml in the composition (preferably 1 - 4 mg/ml). During the preparation process, if the heating is carried out at lower temperatures than 30°C, dissolution of active components occurs slowly, and if it is carried out at higher temperatures than 60°C, the anti-ulcer activity becomes inactivated. Therefore, heating at 50 - 55°C is recommended.

15 Heating time needs 0.5 - 48 hours depending on the heating temperature. For example, at 50 - 55°C, the appropriate heating time is 3 - 12 hours.

Finally, the composition of the present invention may contain proteins of the glutinous rice extract in a concentration of 0.03 - 4.5 mg/ml based on the final composition.

20

Since the anti-peptic ulcer activity of the product of present invention is lost at high temperatures, it is preferable to carry out the sterilization process by microfiltration rather than by high-temperature sterilization.

25 The appropriate single dose of the product for human subjects may range from 20 to 500 ml depending on the preparation method, and it can be ingested up to 10 times a day. For adults, the product can preferably be ingested in a dose of 100 - 300 ml 3 - 6 times per day.

The product may be added with sweeteners, flavoring agents and other water soluble foods and additives.

Advantageous Effects

5 The product of present invention which comprises glutinous rice extract and tea extract shows not only an excellent anti-ulcer activity but also improved stability for the anti-ulcer activity as compared with the similar products of prior art. Accordingly, the present invention provides an anti-peptic ulcer drink using glutinous rice which gains an advantage in terms of stability, utility and economy.

10

Description of Drawings

Fig. 1 shows the changes in anti-peptic ulcer activity of three different clear liquid compositions depending on the storage time, wherein (1) is the water control; (2) is the clear liquid composition comprising only glutinous rice extract; 15 (3) is the clear liquid composition comprising glutinous rice extract and fresh ginseng extract; and (4) is the clear liquid composition comprising glutinous rice extract and green tea extract. The compositions were stored at 4°C for 0-48 weeks.

Fig. 2 exhibits the differences in anti-peptic ulcer activity of the clear 20 liquid compositions made of glutinous rice extract and green tea extract depending on the concentration of glutinous rice extract, wherein (1) is the water control; and (2) - (6) are the compositions made of glutinous rice extract containing 0.1, 0.2, 0.4, 0.8 and 1.6 mg of protein per 1 ml of glutinous rice extract, respectively, and green tea extract of 2 mg/ml based on the composition.

25 Fig. 3 represents the differences in anti-peptic ulcer activity of the clear liquid compositions made of glutinous rice extract and green tea extract depending on the concentration of green tea extract, wherein (1) is the water control; and (2) - (6) are the compositions made of glutinous rice extract (containing 1 mg of protein per 1 ml of the glutinous rice extract) and green tea

extract of 0.25, 0.5, 1.0, 2.0, and 4.0 mg/ml based on the composition, respectively.

Mode for Invention

Having thus described the various aspects of the present invention, the following examples are provided to illustrate specific embodiments of the present invention. However, they are not intended to be limiting in any way.

Example 1: Preparation of glutinous rice extract

One hundred grams of glutinous rice powder was mixed with 400 ml distilled water and agitated vigorously with a vortex mixer 3 times for 30 seconds. After agitation, the mixture was centrifuged at 3,000 x g for 10 minutes and the supernatant was used as glutinous rice extract. The protein concentration of the glutinous rice extract, as determined with a BCA kit (Pierce, USA), was 1.65 mg/ml.

Example 2: Preparation of tea extract

Each of 10 g green tea (Amorepacific Corp., Korea), black tea (Lipton., UK) and oolong tea (Fujian, China) was heated in 1ℓ boiling distilled water for 10 minutes, and filtered. The filtrates were freeze-dried to obtain about 2.3 g green tea extract powder, 2.1 g black tea extract powder and 2.0 g oolong tea extract powder.

Example 3: Preparation of an anti-peptic ulcer composition in the form of clear liquid comprising glutinous rice extract and green tea extract

The glutinous rice extract prepared in Example 1 was diluted with distilled water so that its protein concentration was 1 mg/ml. Added thereto was 2 mg/ml of green tea extract prepared in Example 2, and then heated at 55°C for 12 hours with shaking gently. After heating, the mixture was filtered to obtain a clear liquid composition.

Example 4: Preparation of an anti-peptic ulcer composition in the form of clear liquid comprising glutinous rice extract and black tea extract

The glutinous rice extract prepared in Example 1 was diluted with
5 distilled water so that its protein concentration was 1 mg/ml. Added thereto was 2
mg/ml of black tea extract prepared in Example 2, and then heated at 55°C for 12
hours with shaking gently. After heating, the mixture was filtered to obtain a
clear liquid composition.

10 Example 5: Preparation of an anti-peptic ulcer composition in the form of clear liquid comprising glutinous rice extract and oolong tea extract

The glutinous rice extract prepared in Example 1 was diluted with
distilled water so that its protein concentration was 1 mg/ml. Added thereto was 2
mg/ml of oolong tea extract prepared in Example 2, and then heated at 55°C for
15 12 hours with shaking gently. After heating, the mixture was filtered to obtain a
clear liquid composition.

Example 6: Sterilization of clear liquid anti-peptic ulcer compositions

The compositions prepared in Examples 3, 4 and 5 were sterilized using
20 microfiltration membranes with a pore size of 0.22 μm .

Comparative Example 1: Preparation of fresh ginseng extract

Forty grams of fresh ginseng was added with 265 ml distilled water, and
agitated with a vortex mixer for 30 seconds 3 times. The resulting suspension
25 was used as fresh ginseng extract.

Comparative Example 2: Preparation of a clear liquid composition comprising
glutinous rice extract and fresh ginseng extract

The example was carried out according to the method disclosed in Korea Patent Application No. 2001-65891 (by Ahn et al., 2001). That is, the glutinous rice extract prepared in Example 1 was diluted with distilled water to render its protein concentration to be 1.5 mg/ml. The diluted glutinous rice extract and the
5 fresh ginseng extract prepared in the Comparative Example 1 were mixed in a ratio of 2:1 (v/v), and the mixture was heated at 55°C for 12 hours with shaking gently. After heating, the mixture was filtered to obtain a clear liquid composition.

10 Comparative Example 3: Preparation of a clear liquid composition comprising glutinous rice extract

The example was carried out according to the method disclosed in Korea Patent Application No. 2004-47946 (by Ahn et al., 2001). That is, the glutinous rice extract prepared in Example 1 was diluted with distilled water to render its
15 protein concentration to be 1 mg/ml and kept at room temperature for 12 hours until precipitation occurred. The precipitates were suspended, heated at 55°C for 12 hours with shaking gently, and filtered to obtain a clear liquid composition.

Comparative Example 4: Sterilization of comparative clear liquid compositions

20 The compositions prepared in Comparative Examples 2 and 3 were sterilized using microfiltration membranes with a pore size of 0.22 μ m.

Test Example 1: Differences in stability for the anti-ulcer activity between the compositions of present invention and the comparative compositions during
25 long-term storage

(1) Determination of anti-peptic ulcer activity

The determination was performed according to the method described by Yamasaki et al. (Eur. J. Pharmacol. 142, 23-29, 1987) with a slight modification.

Male Sprague-Dawley rats weighing 250 ± 20 g were fasted for 24 hours prior to the study. Absolute ethanol was orally administered to rats in an amount of 1 ml to induce gastric mucosal damage. Anti-peptic ulcer compositions were orally administered in an amount of 1 ml per rat 30 minutes prior to the ethanol administration. For the control group, the same amount of distilled water was administered. One and half hours after the ethanol administration, rats were sacrificed under ether anesthesia and the stomach was removed. The removed stomach was injected with 10 ml of 1% formalin and fixed for 30 minutes. After fixation, the stomach was incised along the greater curvature, and its inside surface was photographed with a digital camera. Then, the area of damage in gastric mucosa was measured planimetrically on the photographs and represented as the ulcer index which was the percentage of the damaged part compared with the total glandular area. Inhibition of ulcer formation (%) by test compositions was calculated as follows: $[(\text{ulcer index of the control group} - \text{ulcer index of the test group}) / \text{ulcer index of the control group}] \times 100$

All data are expressed as the means $\pm$ standard deviation and were analyzed by one-way analysis of variance (ANOVA) and Scheffe's test.

(2) Changes in the activity of different anti-peptic ulcer compositions depending on the storage time

The following compositions were prepared as described in Examples 3 and 6 and Comparative Examples 2 to 4.

- 1: Distilled water for the control
- 2: A clear liquid composition comprising only glutinous rice extract (GRCOM-O)
- 3: A clear liquid composition comprising glutinous rice extract and fresh ginseng extract (GRCOM-GI)
- 4: A clear liquid composition comprising glutinous rice extract and green tea extract (GRCOM-GT)

The compositions were kept at 4°C. And 0, 4, 24 and 48 weeks later, aliquots of the compositions were withdrawn and determined for their anti-ulcer activities according to the method described in Test Example 1 (1). The results are shown in Fig. 1. Each group consists of eight rats and the observed values are represented as means $\pm$ standard deviation.

* * $p < 0.01$: When compared with the control group

[†] $p < 0.05$ and ^{††} $p < 0.01$: When compared with the GRCOM-O group

[§] $p < 0.05$: When compared with the GRCOM-GI group

As shown in Fig. 1, in all of GRCOM-GT, GRCOM-GI and GRCOM-O, the anti-peptic ulcer activity declined along with the duration of storage at 4°C. But the reduction rates were quite different among three compositions. GRCOM-GT showed higher anti-ulcer activities than GRCOM-O for the entire period of storage. Also, as compared with GRCOM-GI, GRCOM-GT showed significantly higher activities at 24 and 48 weeks of storage.

Table 1 shows the storage-dependent decreases in anti-ulcer activity of different clear liquid compositions in term of percent inhibition of ulcer formation.

25

30

Table 1

Experimental Group	Inhibition of ulcer formation, % (*)			
	0 week	4 week	24 week	48 week
GRCOM-O - treated (N = 8)	66.5(100)	36.1(54.2)	19.6(29.4)	14.8(22.2)
GRCOM-GI - treated (N = 8)	84.2(100)	77.4(91.9)	54.5(64.7)	44.9(53.3)
GRCOM-GT - treated (N = 8)	87.0(100)	83.5(95.9)	76.0(87.3)	67.3(77.3)
GRCOM-BT - treated (N = 8)	88.2(100)	86.4(97.9)	78.3(88.7)	69.1(78.3)
GRCOM-OT - treated (N = 8)	85.7(100)	78.8(91.9)	70.6(82.3)	63.3(73.8)

5 GRCOM-O: A clear liquid composition comprising only glutinous rice extract (prepared as described in Comparative Examples 3 and 4)

GRCOM-GI: A clear liquid composition comprising glutinous rice extract and fresh ginseng extract (prepared as described in Comparative Examples 2 and 4)

10 GRCOM-GT: A clear liquid composition comprising glutinous rice extract and green tea extract (prepared as described in Examples 3 and 6)

15 GRCOM-BT: A clear liquid composition comprising glutinous rice extract and black tea extract (prepared as described in Examples 4 and 6)

GRCOM-OT: A clear liquid composition comprising glutinous rice extract and oolong tea extract (prepared as described in Examples 5 and 6)

* Values in parentheses are relative values when the 0-week value is set at 100 in each group

5 The anti-ulcer activity of GRCOM-O at 0 week of storage was lower than those of other compositions tested, and, moreover, the activity declined most rapidly on storage showing only 54.2, 29.4 and 22.2% of the initial value at 4, 24, and 48 weeks, respectively. On the other hand, the anti-ulcer activity of GRCOM-GT, a product of present invention, was most stable showing 95.9, 87.3
10 and 77.3% of the initial value at 4, 24 and 48 weeks, respectively. The stability of anti-ulcer activity of GRCOM-GI was intermediate between those of GRCOM-GT and GRCOM. The activity decreased to 91.9, 64.7 and 53.3% of the initial value at 4, 24 and 48 weeks, respectively

15 Also, the clear liquid anti-peptic ulcer composition comprising glutinous rice extract and black tea extract (GRCOM-BT) as well as the clear liquid anti-peptic ulcer composition comprising glutinous rice extract and oolong tea extract (GRCOM-OT) exhibited similar results to that of GRCOM-GT in the stability of anti-ulcer activity.

20 The above results indicate that the products of present invention comprising glutinous rice extract and tea extract have much better stability for the anti-ulcer activity than the products of prior art comprising only glutinous rice extract or glutinous rice extract plus fresh ginseng extract.

25 Test Example 2: Determination of suitable conditions for preparing the clear liquid anti-ulcer composition comprising glutinous rice extract and tea extract

(1) Concentration of glutinous rice extract

The glutinous rice extract prepared in Example 1 was diluted with distilled water to render the protein concentration to be 0.1, 0.2, 0.4, 0.8 and 1.6 mg/ml. Added thereto was 2 mg/ml of green tea extract prepared in Example 2. Then, the mixtures were heated at 55°C for 12 hours with shaking gently. After heating, the mixtures were filtered to obtain the following clear liquid compositions.

1: Distilled water for the control

2: A composition made of glutinous rice extract containing 0.1 mg of protein per 1 ml of the glutinous rice extract and green tea extract of 2 mg/ml based on the composition

3: A composition made of glutinous rice extract containing 0.2 mg of protein per 1 ml of the glutinous rice extract and green tea extract of 2 mg/ml based on the composition

4: A composition made of glutinous rice extract containing 0.4 mg of protein per 1 ml of the glutinous rice extract and green tea extract of 2 mg/ml based on the composition

5: A composition made of glutinous rice extract containing 0.8 mg of protein per 1 ml of the glutinous rice extract and green tea extract of 2 mg/ml based on the composition

6: A composition made of glutinous rice extract containing 1.6 mg of protein per 1 ml of the glutinous rice extract and green tea extract of 2 mg/ml based on the composition

The anti-ulcer activities of the above compositions were determined according to the method described in Test Example 1(1), and the results are shown in Fig. 2. Each group consists of six rats and the observed values are represented as means $\pm$ standard deviation.

* * $p < 0.01$: When compared with the control group

As shown in Fig. 2, the anti-ulcer activity of the test composition
5 increased as the protein concentration of glutinous rice extract became higher. At
the protein concentration of ~ 0.2 mg/ml, the composition began to show a
significant anti-ulcer effect and when the protein concentration was increased to
about 0.8 mg/ml, the effect reached to the maximum value.

10 (2) Concentration of green tea extract

The glutinous rice extract prepared in Example 1 was diluted with
distilled water to render the protein concentration to be 1 mg/ml. Added thereto
was the green tea extract prepared in Example 2 in the concentration of 0.25, 0.5,
1.0, 2.0 and 4.0 mg/ml. Then, the mixtures were heated at 55 °C for 12 hours with
15 shaking gently. After heating, the mixtures were filtered to obtain the following
clear liquid compositions.

1: Distilled water for the control

2: A composition made of glutinous rice extract containing 1 mg of
20 protein per 1 ml of the glutinous rice extract and green tea extract of 0.25 mg/ml
based on the composition

3: A composition made of glutinous rice extract containing 1 mg of
protein per 1 ml of the glutinous rice extract and green tea extract of 0.5 mg/ml
based on the composition

25 4: A composition made of glutinous rice extract containing 1 mg of
protein per 1 ml of the glutinous rice extract and green tea extract of 1.0 mg/ml
based on the composition

5: A composition made of glutinous rice extract containing 1 mg of protein per 1 ml of the glutinous rice extract and green tea extract of 2.0 mg/ml based on the composition

6: A composition made of glutinous rice extract containing 1 mg of protein per 1 ml of the glutinous rice extract and green tea extract of 4.0 mg/ml based on the composition

The anti-ulcer activities of the above compositions were determined according to the method described in Test Example 1(1), and the results are shown in Fig. 3. Each group consists of six rats and the observed values are represented as means $\pm$ standard deviation.

* * $p < 0.01$: When compared with the control group

As shown in Fig. 3, the anti-ulcer activity of the test composition increased as the concentration of green tea extract became higher. At the concentration of ~ 0.5 mg/ml, the composition began to show a significant anti-ulcer effect and when the concentration was increased to about 2 mg/ml, the effect reached to the maximum value.

(3) Heating temperature

The glutinous rice extract prepared in Example 1 was diluted with distilled water to render the protein concentration to be 1 mg/ml. Added thereto was 2 mg/ml of green tea extract prepared in Example 2. Then, the mixture was heated at 30-65°C for 12 hours and filtered to obtain clear liquid compositions (GRCOM-GT).

The anti-ulcer activities of the above clear liquid compositions were determined according to the method described in Test Example 1(1), and the results are shown in Table 2.

As shown in Table 2, the anti-ulcer activity of GRCOM-GT increased as the heating temperature rose at 30 -55°C. However, as the temperature rose above 55°C, the anti-ulcer activity decreased rapidly and was totally lost at 65°C.

5

Table 2

Test composition	Heating temperature (°C)	Heating time (hour)	Ulcer index (%) ^b	Inhibition of ulcer formation (%)
Distilled water (control)			65.5±19.1	
GRCOM-GT ^a	30	12	47.9±12.1	26.8
	40	12	34.3±8.9*	47.6
	50	12	17.9±5.3**	72.7
	55	12	8.8±5.0**	86.6
	60	12	45.3±13.8	30.8
	65	12	69.8±22.7	0

^a GRCOM-GT: The clear liquid anti-ulcer composition made of glutinous rice extract (protein concentration, 1 mg/ml) and the green tea extract (2 mg/ml)

10

^b Denoted values are means ± standard deviation (N=6)

* p<0.05, ** p<0.01: When compared with the control group

(4) Heating time

The glutinous rice extract prepared in Example 1 was diluted with distilled water to render the protein concentration to be 1 mg/ml. Added thereto was 2 mg/ml of green tea extract prepared in Example 2. Then, the mixture was heated at 55°C for 0.5 - 48 hours and filtered to obtain clear liquid compositions (GRCOM-GT).

The anti-ulcer activities of the above clear liquid compositions were determined according to the method described in Test Example 1(1),^a and the results are shown in Table 3.

As shown in Table 3, the anti-ulcer activity of GRCOM-GT increased along with the heating time and reached to the maximum at about 5 - 12 hours.

Table 3

Test composition	Heating temperature (°C)	Heating time (hour)	Ulcer index (%) ^b	Inhibition of ulcer formation (%)
Distilled water (control)			63.9±17.6	
GRCOM-GT ^a	55	0.5	42.3±11.8*	33.8
	55	1	30.5± 7.4**	52.3
	55	3	18.7± 5.7**	70.7
	55	5	10.6± 4.9**	83.4
	55	12	7.8± 3.2**	87.8
	55	24	8.8± 4.5**	86.2
	55	48	11.8± 5.0**	81.5

^a GRCOM-GT: The clear liquid anti-ulcer composition made of glutinous rice extract (protein concentration, 1 mg/ml) and green tea extract (2 mg/ml)

^b Denoted values are means ± standard deviation (N=6)

* p<0.05, ** p<0.01: When compared with the control group

Test Example 3: Confirmation of sterilization of the clear liquid anti-ulcer compositions

To confirm the effectiveness of sterilization by microfiltration, aliquots of the clear liquid compositions obtained in Example 6 and Comparative

Example 4 were stored at room temperature, and any microorganism was not detected in the compositions during 6 months.

5 Test Example 4: Test for adverse effect of the clear liquid anti-ulcer compositions

Each of the compositions prepared as in Example 3, 4 and 5 was ingested by a normal volunteer for 10 weeks in an amount of 200 ml once a day. As a result, any adverse effect was not observed.

10

CLAIMS

1. An anti-peptic ulcer composition in the form of clear liquid comprising glutinous rice extract and tea extract as active ingredients, wherein
5 the extracts are dissolved in the composition.

2. The anti-peptic ulcer composition of claim 1, wherein the glutinous rice extract contains proteins in a concentration of 0.1 - 5 mg per 1 ml of the glutinous rice extract.
10

3. The anti-peptic ulcer composition of claim 2, wherein the protein of glutinous rice extract is contained in the composition in a concentration of 0.03 - 4.5 mg/ml based on the composition.

15 4. The anti-peptic ulcer composition of claim 1, wherein the tea extract is contained in the composition in a concentration of 0.25 - 10 mg/ml based on the composition.

5. The anti-peptic ulcer composition of claim 1, wherein the composition
20 is prepared by the method which comprises the following steps: a) heating the mixture of glutinous rice extract and tea extract at 30 - 60°C for 0.5 - 48 hours; and b) filtering the mixture.

6. The anti-peptic ulcer composition of claim 5, wherein the method
25 further comprises a step c) sterilizing the composition by the microfiltration process.

7. The anti-peptic ulcer composition of claim 1, wherein the glutinous rice extract is prepared by the method which comprises the following steps: a)

agitating vigorously glutinous rice powder in 2 to 10 volumes (w/v) of water; and b) centrifuging the mixture to obtain a supernatant.

8. The anti-peptic ulcer composition of claim 7, wherein the method
5 further comprises a step c) keeping the supernatant at room temperature for 12 to 24 hours until precipitation occurs.

9. The anti-peptic ulcer composition of claim 1, wherein the tea extract is prepared by the method which comprises the following steps: a) extracting tea
10 with 50 to 200 volumes (w/v) of boiling water for 5 to 30 minutes; b) filtering; and c) freeze-drying the filtrate.

10. The anti-peptic ulcer composition of claim 1 or 9, wherein the tea extract is selected from the group consisting of green tea extract, black tea extract
15 and oolong tea extract.

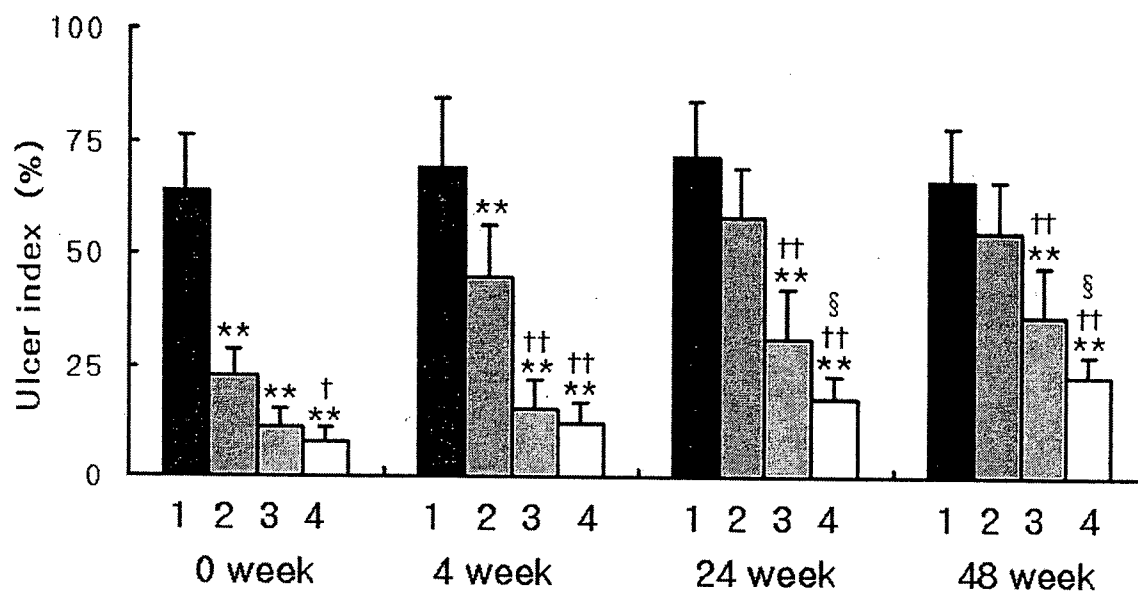
11. The anti-peptic ulcer composition of claim 1, which further comprises a sweetener, flavoring agents and other water-soluble foods and additives.
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12. The anti-peptic ulcer composition of claim 1, wherein the composition is formulated in the oral administration form.

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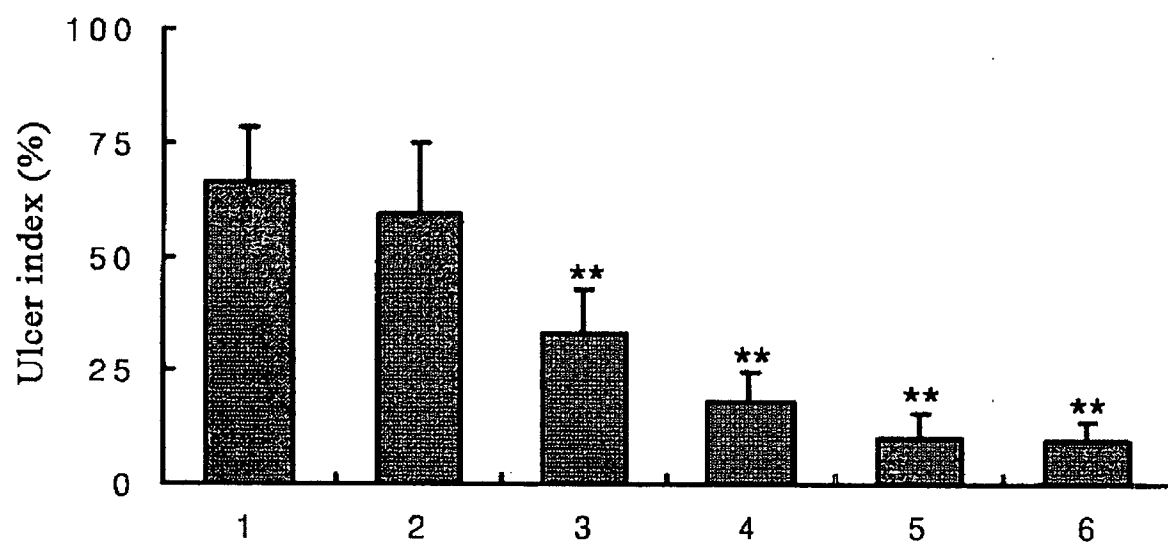
1/3

Fig. 1



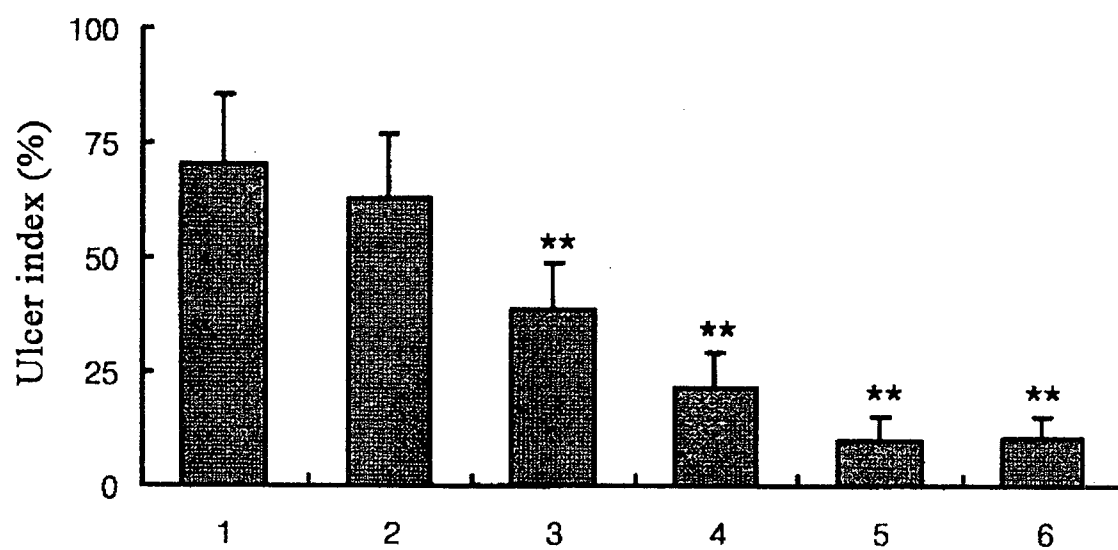
2/3

Fig. 2



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Fig. 3



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2008/001732**A. CLASSIFICATION OF SUBJECT MATTER****A61K 36/899(2006.01)i**

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)

IPC 8 as above

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)

STN, PubMed-online, eKIPASS(KIPO internal)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-2001-0019384 A (INDUSTRY FOUNDATION OF CHONNAM NATIONAL UNIVERSITY) 15 March 2001 See examples 1-8; claims 1-8.	1-12
A	KR 10-1997-0020114 A (AHN, B.W. et al.) 28 May 1997 See the whole document.	1-12
A	JP 04210645 A (SOKEN CO., LTD.) 31 July 1992 See the whole document.	1-12
A	JP 05139972 A (TAIYO KAGAKU CO., LTD.) 08 June 1993 See the whole document.	1-12
A	KR 10-2005-0122581 A (AHN, B.W. et al.) 29 December 2005 See the whole document.	1-12
A	KR 10-2003-0033773 A (AHN, B.W. et al.) 01 March 2003 See the whole document.	1-12

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

17 JUNE 2008 (17.06.2008)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2008/001732

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