SANITARY NAPKIN CONTAINING HERBAL COMPOSITION AND METHOD OF MANUFACTURING THE SAME

Abstract: Disclosed is a sanitary napkin containing an herbal composition. The sanitary napkin is manufactured by impregnation-drying the herbal composition, which is prepared by mixing green tea leaves, *Sophora flavesens* and mugwort (or Artemisiae Folium) at a ratio of 35:45: 25-35: 30-40 wt%, incubating the mixed herbal materials in boiling water, and mixing 50-60 wt% of the resulting herbal extract with 30-40 wt% of *C. obtusa* essential oil and 10-20 wt% of pyrolygicous liquor, in the menestral fluid-absorbing pad; application-drying the herbal composition in gel form, which is prepared by concentrating, under reduced pressure, a herbal composition in which the herbal extract is mixed with *C. obtusa* essential oil and pyrolygicous liquor, in the upper surface of the menestral fluid-absorbing pad; and applying the herbal composition in the fine powder form, which is prepared by lyophilizing and pulverizing the herbal composition in the gel form, in the upper surface of the menestral fluid-absorbing pad, thereby preventing microbial propagation due to absorbed bodily secretions by the pharmaceutical action of the herbal composition and promoting a clean and sanitary condition.
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Description
SANITARY NAPKIN CONTAINING HERBAL COMPOSITION
AND METHOD OF MANUFACTURING THE SAME

Technical Field

The present invention relates to a sanitary napkin containing an herbal composition, and more particularly to sanitary napkin containing an herbal composition, which is prepared in the form of a liquid, gel or powder by mixing green tea leaves, Sophora flavescens, mugwort (or Artemisiae Folium), essential oil from Chamaecyparis obtusa and pyroligneous liquor at a predetermined ratio, incubating the mixture in boiling water, and concentrating and lyophilizing the mixture, wherein the herbal composition is immobilized in a menstrual fluid-absorbing pad between a top sheet and a back sheet through impregnation-drying, application-drying or application, thereby being useful for relieving pain, for example, due to menstrual flow, and eliminating unpleasant odors through the functionality of herbal materials. Also, the present invention is concerned with the method of manufacturing the sanitary napkin.

Background Art

Typically, catamenial devices indicate articles that are worn to absorb woman’s secretions, such as menstrual fluids or leucorrhea. Such catamenial devices are divided into two major types: the tampon, which is inserted inside the vagina, and the sanitary napkin, which is situated outside and close to the vagina. The present invention relates to a sanitary napkin, which is worn externally in such a way to be attached to the inner side of the underwear.

Furthermore, menstrual fluids, which are discharged from the vagina during menstrual cycles, contain menstrual blood and cellulosic and mucoid materials. Such menstrual fluids are absorbed by an absorbent pad of a sanitary napkin for absorbing menstrual blood, but remain in the absorbent pad for a long period of time, thus creating an environment suitable for the growth of various microbes. Such microbial growth results in the generation of unpleasant odors and hygienic problems. Thus, it is very important to maintain sanitary napkins in a hygienic state, and sanitary napkins must prevent microbial propagation as well as absorbing menstrual fluids and other bodily secretions.

An illustrative conventional sanitary napkin is shown in FIG. 1. FIG. 1 is a perspective view of the conventional sanitary napkin, and FIG. 2 is a cross-sectional view of FIG. 1 along line AA.

As illustrated in FIGS. 1 and 2, the conventional sanitary napkin 10 comprises a permeable top sheet 12 that contacts the skin and passes bodily secretions; an
permeable back sheet 14 having the same size and shape as the top sheet 12 and being bonded to the top sheet 12 by fusion; an absorbent pad 16, which is provided between the top sheet 12 and the back sheet 14 to absorb bodily secretions, such as menstrual blood, that permeates the top sheet 12, and an adhesive portion 18, which is provided at a suitable position between the absorbent pad 16 and the top sheet 12 to immobilize the sanitary napkin 10 by attaching it to the inner side of the underwear.

In the conventional sanitary napkin 10, constructed as described above, the absorbent pad 16 for absorbing bodily secretions is inserted at a suitable position between the top sheet 12 and the back sheet 14, and is bonded thereto by thermal bonding of edges of the top sheet 12 and the back sheet 14. In the sanitary napkin 10 constructed in such a way, bodily secretions that permeate the top sheet 12 are absorbed by the absorbent pad 16. The conventional sanitary napkin 10 is often provided with flaps 20, which are folded onto the outer surface of a crotch portion of the underwear. The flaps 20 are provided with adhesive portions 22 at the back surface thereof in order to adhere to the underwear.

However, since the conventional sanitary napkin, constructed as described above, has a simple structure, which is composed of the absorbent pad, for absorbing bodily secretions, and the top and back sheets, it entails hygienic problems due to microbial propagation. That is, menstrual fluids are absorbed in the absorbent pad of the conventional sanitary napkin and stay therein for a long period of time, forming an ideal environment for microbial growth and propagation, which result in the generation of unpleasant odors and hygienic problems.

In particular, many women complain of pain due to menstrual fluids or leucorrhea. In this situation, if absorbed secretions bring about the propagation of microbes in sanitary napkins, women's diseases will advance, accompanied by greater pain.

In addition, the conventional sanitary napkin does not have a means of effectively eliminating odors generated by absorbed secretions. Such odors make wearers uncomfortable, and also cause hygienic problems.

Disclosure of Invention

Technical Problem

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide a sanitary napkin containing an herbal composition, which is prepared in the form of a liquid, gel or powder by mixing green tea leaves, *Sophoraflavescens*, mugwort (or Artemisiae Folium), essential oil from *Chamaecyparis obtusa* and pyroligneous liquor at a predetermined ratio, incubating the herbal mixture in boiling water, and concentrating and lyophilizing the resulting extract, wherein the herbal composition is
inserted and immobilized into a menstrual fluid-absorbing pad between a top sheet and a back sheet through impregnation and drying, or application and drying, thereby preventing microbial propagation due to absorbed bodily secretions by the pharmaceutical action of the herbal composition, leading to a clean and sanitary condition, and a method of manufacturing the sanitary napkin.

Another object of the present invention is to adhere and apply the herbal composition in the form of a liquid, gel or powder to a menstrual fluid-absorbing pad of a sanitary napkin through impregnation and drying, or application and drying in order to immobilize the herbal composition between fibrous tissues, thereby relieving pain attributable to the generation of bodily secretions by the pharmaceutical action of the herbal composition.

A further object of the present invention is to adhere and apply the herbal composition in the form of a liquid, gel or powder to a menstrual fluid-absorbing pad of a sanitary napkin through impregnation and drying, or application and drying in order to immobilize the herbal composition between fibrous tissues, thereby eliminating odors, generated by absorbed bodily secretions, by the pharmaceutical action and scent of the herbal composition.

**Advantageous Effects**

In accordance with the present invention, the present invention has an effect of preventing microbial propagation due to absorbed bodily secretions by the pharmaceutical action of an herbal composition, leading to a clean and sanitary condition, by providing a sanitary napkin containing the herbal composition, which is prepared in the form of a liquid, gel or powder, by mixing green tea leaves, *Sophoraflavescens*, mugwort (or Artemisiae Folium), essential oil from *Chamaecyparis obtusa* and pyrroligneous liquor at a predetermined ratio, incubating the herbal mixture in boiling water, and concentrating and lyophilizing the resulting extract, wherein the herbal composition is inserted and immobilized into a menstrual fluid-absorbing pad between a top sheet and a back sheet through impregnation-drying, application-drying or application.

The present invention has another effect of relieving pain, attributable to the generation of bodily secretions, by the pharmaceutical action of the herbal composition by adhering and applying the herbal composition in the form of a liquid, gel or powder to a menstrual fluid-absorbing pad of a sanitary napkin through impregnation-drying or application-drying in order to immobilize the herbal composition between fibrous tissues.

The present invention has a further effect of eliminating odors generated from absorbed bodily secretions by the pharmaceutical action and scent of the herbal
composition by adhering and applying the herbal composition in the form of a liquid, gel or powder to a menstrual fluid-absorbing pad of a sanitary napkin through im-pregnation-drying or application-drying in order to immobilize the herbal composition between fibrous tissues.

**Brief Description of the Drawings**

[16] FIG. 1 is a perspective view of a conventional sanitary napkin;

[17] FIG. 2 is a cross-sectional view of FIG. 1 along line AA;

[18] FIG. 3 is a perspective view of a sanitary napkin containing an herbal composition according to an embodiment of the present invention;

[19] FIG. 4 is a diagram showing a method of manufacturing the sanitary napkin containing the herbal composition according to FIG. 3;

[20] FIG. 5 is a cross-sectional view of a sanitary napkin containing an herbal composition according to another embodiment of the present invention;

[21] FIG. 6 is a diagram showing a method of manufacturing the sanitary napkin containing the herbal composition according to FIG. 5;

[22] FIG. 7 is a perspective view of a sanitary napkin containing an herbal composition according to a further embodiment of the present invention; and

[23] FIG. 8 is a diagram showing a method of manufacturing the sanitary napkin containing the herbal composition according to FIG. 7.

**Best Mode for Carrying Out the Invention**

[24] In order to accomplish the above objects, the present invention has the following constitution. In one embodiment, the present invention provides a sanitary napkin containing an herbal composition, comprising a permeable top sheet to contact the skin and pass bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being bonded to the top sheet by fusion; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions permeating the top sheet, wherein the herbal composition is prepared by mixing 35-45 wt% of green tea leaves, 25-35 wt% of *Sophoraflavescens* and 30-40 wt% of mugwort (or Artemisiae Folium), mixing 30-50 wt% of the mixed herbal materials with 50-70 wt% of water, incubating the resulting mixture in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract, and mixing 50-60 wt% of the herbal extract with 30-40 wt% of essential oil from *Chamaecyparis obtusa* and 10-20 wt% of edible pyroligneous liquor, and the herbal composition is impregnated and dried in the menstrual fluid-absorbing pad, which closely contacts the lower surface of the top sheet.

[25] In another embodiment, the present invention provides a sanitary napkin containing an herbal composition, comprising a permeable top sheet to contact the skin and pass
bodily secretions; an impermeable back sheet having the same size and shape as the
top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which
is inserted and immobilized between the top sheet and the back sheet to absorb bodily
secretions permeating the top sheet, wherein the herbal composition is prepared by
mixing 35-45 wt% of green tea leaves, 25-35 wt% of Sophora flavescens and 30-40
wt% of mugwort (or Artemisiae Folium), mixing 30-50 wt% of the mixed herbal
materials with 50-70 wt% of water, incubating the resulting mixture in boiling water at
100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract,
mixing 50-60 wt% of the herbal extract with 30-40 wt% of essential oil from
Chamaecyparis obtusa and 10-20 wt% of edible pyroligneous liquor, and con-
centrating the resulting mixture under reduced pressure into a gel form, and the herbal
composition in the gel form is applied to and dried in the upper surface of the
menstrual fluid-absorbing pad, which closely contacts the lower surface of the top
sheet.

[26] In a further embodiment, the present invention provides a sanitary napkin
containing an herbal composition, comprising a permeable top sheet to contact the skin
and pass bodily secretions; an impermeable back sheet having the same size and shape
as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad,
which is inserted and immobilized between the top sheet and the back sheet to absorb
bodily secretions permeating the top sheet, wherein the herbal composition is prepared
by mixing 35-45 wt% of green tea leaves, 25-35 wt% of Sophora flavescens and 30-40
wt% of mugwort (or Artemisiae Folium), mixing 30-50 wt% of the mixed herbal
materials with 50-70 wt% of water, incubating the resulting mixture in boiling water at
100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract,
mixing 50-60 wt% of the herbal extract with 30-40 wt% of essential oil from
Chamaecyparis obtusa and 10-20 wt% of edible pyroligneous liquor, concentrating the
resulting mixture under reduced pressure to a gel form, and lyophilizing the herbal
composition in the gel form, pulverizing the dried herbal composition into fine powder,
and the herbal composition in the fine powder is applied to the menstrual fluid-
absorbing pad, which closely contacts the lower surface of the top sheet.

[27] According to the present invention, there is also provided a method of manufac-
turing a sanitary napkin containing an herbal composition. In one embodiment, the
present invention provides a method of manufacturing a sanitary napkin containing an
herbal composition and comprising a permeable top sheet to contact the skin and pass
bodily secretions; an impermeable back sheet having the same size and shape as the
top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which
is inserted and immobilized between the top sheet and the back sheet to absorb bodily
secretions permeating the top sheet, the method comprising (a) mixing 35-45 wt% of
green tea leaves, 25-35 wt% of *Sophora flavescens* and 30-40 wt% of mugwort (or Artemisiae Folium); (b) mixing 30-50 wt% of herbal materials, mixed at a predetermined ratio in step (a), with 50-70 wt% of water; (c) incubating the resulting mixture of step (b), consisting of 30-50 wt% of the mixed herbal materials and 50-70 wt% of water, in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract; (d) mixing 50-60 wt% of a liquid herbal extract, which is obtained by incubation in boiling water in step (c), with 30-40 wt% of essential oil from *Chamaecyparis obtusa* and 10-20 wt% of edible pyroligneous liquor to yield the herbal composition; and (e) impregnating and drying the herbal composition obtained in step (d) in the menstrual fluid-absorbing pad, and immobilizing the menstrual fluid-absorbing pad between the top sheet and the back sheet.

[28] In another embodiment, the present invention provides a method of manufacturing a sanitary napkin containing an herbal composition and comprising a permeable top sheet to contact the skin and pass bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions permeating the top sheet, the method comprising (a) mixing 35-45 wt% of green tea leaves, 25-35 wt% of *Sophora flavescens* and 30-40 wt% of mugwort (or Artemisiae Folium); (b) mixing 30-50 wt% of herbal materials, mixed at a predetermined ratio in step (a), with 50-70 wt% of water; (c) incubating the resulting mixture of step (b), consisting of 30-50 wt% of the mixed herbal materials and 50-70 wt% of water, in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract; (d) mixing 50-60 wt% of a liquid herbal extract, which is obtained by incubation in boiling water in step (c), with 30-40 wt% of essential oil from *Chamaecyparis obtusa* and 10-20 wt% of edible pyroligneous liquor to yield the herbal composition; (e) concentrating the herbal composition obtained in step (d) under reduced pressure into a gel form; and (f) applying and drying the herbal composition in the gel form, which is obtained in step (e), in the upper surface of the menstrual fluid-absorbing pad, which closely contacts the lower surface of the top sheet, and immobilizing the menstrual fluid-absorbing pad between the top sheet and the back sheet.

[29] In a further embodiment, the present invention provides a method of manufacturing a sanitary napkin containing an herbal composition and comprising a permeable top sheet to contact the skin and pass bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions permeating the top sheet, the method comprising (a) mixing 35-45 wt% of green tea leaves, 25-35 wt% of *Sophora*
flavescens and 30-40 wt% of mugwort (or Artemisiae Folium); (b) mixing 30-50 wt% of herbal materials mixed at a predetermined ratio in step (a) with 50-70 wt% of water; (c) incubating the resulting mixture of step (b), consisting of 30-50 wt% of the mixed herbal materials and 50-70 wt% of water, in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract; (d) mixing 50-60 wt% of a liquid herbal extract, which is obtained by incubation in boiling water in step (c), with 30-40 wt% of essential oil from Chamaecyparis obtusa and 10-20 wt% of edible pyroligneous liquor to yield the herbal composition; (e) concentrating the herbal composition obtained in step (d) under reduced pressure into a gel form; (f) lyophilizing the herbal composition in the gel form, which is obtained in step (e); (g) pulverizing the herbal composition dried in step (f) into fine powder; and (h) applying the herbal composition pulverized into fine powder in step (g) to the upper surface of the menstrual fluid-absorbing pad, which closely contacts the lower surface of the top sheet, and immobilizing the menstrual fluid-absorbing pad between the top sheet and the back sheet.

Mode for the Invention

Hereinafter, a sanitary napkin containing an herbal composition and a method of manufacturing the same according to a preferred embodiment of the present invention will be described in detail.

First, prior to the description of a sanitary napkin containing an herbal composition and a method of manufacturing the same according to the present invention, the theoretical background and pharmaceutical actions of herbal materials used in the present invention, green tea leaves, Sophoraflavescens, mugwort (or Artemisiae Folium), essential oil from Chamaecyparis obtusa and pyroligneous liquor, are described below.

Among the aforementioned herbal materials, green tea is tea that is made with un-fermented tea leaves. Tea is divided into green tea, black tea and oolong tea according to fermentation during its manufacturing process, and leaves of a tea tree are used as raw material in the manufacture of any tea. The tea tree used as a raw material of green tea is an evergreen tree or shrub which belongs to Family Theaceae of Order Parietales of dicotyledonous plants. This tree grows well in regions that are relatively warm and have heavy rainfall. In the manufacture of green tea, leaves collected from the tea tree are immediately heated to destroy oxidases, thereby maintaining the leaves green, and to evaporate moisture, thereby making the leaves suitable to be rolled. The leaves are further heated to remove most of the moisture, so that they are somewhat crisp.

Green tea has been scientifically proven to be a natural food that has numerous efficacies due to its mysterious ingredients which are beneficial to human bodies. The
Efficacies of green tea include an anticancer effect, aging-suppressive effect, preventive effects for hypertension and arteriosclerosis, physical constitution-improving effect, anti-diabetic effect, detoxification effect against poisons such as heavy metals, anti-obesity effect, sterilization effect against *E. coli* 0-157, teeth decaying-preventing and breath odor-removing effects, cosmetic effect, fatigue-relieving effect, therapeutic effect for constipation, and preventive effect for asthma.

In particular, catechins contained in green tea have been known to have anti-lipid peroxidation action, as well as an inhibitory effect on the action of reactive oxygen involved in various diseases, desmutagenic effect against carcinogens, cholesterol re-absorption-inhibiting effect, antibacterial and antiviral effects, teeth decaying-preventing effect, deodorization effect, and the like. Among the effects of green tea, the antibacterial and antiviral effects and deodorization effect will be utilized in the present invention.

*Sophora flavescent* is a perennial herb belonging to Family Leguminosae of Order Rosales of dicotyledonous plants. This herb has thick and long roots and an erect stem, and grows to about 1 m tall. *S. flavescent* is not bitter, but has an efficacy similar to ginseng. The leaves of *S. flavescent* are somewhat bitter and tough, and thus are not suitable for use as food, but *S. flavescent* roots are used as a medicine. The roots (Sophorae Radix) has the stomachic action and thus promotes digestion and restores the appetite, and are used as a diuretic, an analgesic, an antipyretic, an insecticide, and as a therapeutic agent for uterine bleeding. When the roots are decocted and ingested a little at a time for a long period of time, they act as a tonic and particularly improve the sexual function of women. The roots have been known to have strong sterilization effects on general bacteria, and are also used in the treatment of jaundice, dysentery, pruritus vulvae, vaginal discharge, and the like. The present invention will employ *S. flavescent* roots (Sophorae Radix) for their sterilization effects and efficacy on vaginal discharge.

Mugwort is a perennial herb belonging to Family Compositae of Order Companulales of dicotyledonous plants. Mugwort is a common name applied to those having a mugwort-like appearance among species belonging to the genus Artemisia. The species used in moxa cautery is distinct from other species, and is called *Artemisia lavandulaefolia*. Mugwort species are mostly similar, and thus are indistinguishable from each other, but are classified according to the size of capitate flowers and the shape of leaves. *A. lavandulaefolia* has an appearance similar to that of mugwort but is distinguished from other mugwort species by spots having white hairs on the topside of leaves.

Mugwort (or *Artemisia Folium*) contains as major components cineol (50%), atenne, choline, tannin, chlorophyll, and the like. In particular, cineol has been known
to alleviate fever and promote blood circulation. Also, the leaves of mugwort are called Artemisiae Folia and are used as an herbal medicine in Chinese herbal medicine. The leaves have hemostatic action, bacterial growth-inhibiting effect, antitussive action, expectorant action, and therapeutic effects on women's menstrual pain, abnormal menstruation and vaginal discharge. The leaves have also been known to be effective on skin itching when an itching region of the skin is washed with a decoction of the leaves. The present invention will employ mugwort for its therapeutic effects on women's menstrual pain, abnormal menstruation and vaginal discharge.

Chamaecyparis obtusa is an evergreen tree belonging to Family Cupressaceae of Order Coniferales of gymnosperms. C. obtusa is also called an old pine tree, which grows to 40 m tall and 2 m wide. The branches spread horizontally, forming a conical tree crown. The bark is reddish brown, fibrous, and peels off in long thin strips. The leaves are opposite, thick, 1-1.5 mm long, scale-like, and marked with Y-shaped white stomatal bands on the underside.

C. obtusa has been known to relieve allergies or atopic dermatitis due to its antimicrobial and insect-repellent activity; stabilize the sensory system, eliminate stress and clear the spirit; remove odors by purifying indoor air; emit anions and supply oxygen; control indoor humidity; and stabilize the sensory system by promoting the discharge of bodily secretions and restoring endogenous rhythms.

In particular, when about sixty antibiotics which are currently used most in hospitals are arranged in order with respect to antimicrobial activity, the essential oil (phytonchid) from C. obtusa has been shown to be within the top ten, thus demonstrating its strong antimicrobial activity. An experiment conducted by forestry researchers revealed that C. obtusa essential oil has antimicrobial activity similar to or higher than that of cupric sulfate, which is used as a raw material in agricultural chemicals. A study performed in the Research Institute of Veterinary Medicine, Chungbuk National University, resulted in the finding that C. obtusa essential oil has excellent sterilization effects. Moreover, unlike conventional antibiotics, C. obtusa essential oil has not been shown to cause resistance thereto, even though it exhibits strong antimicrobial activity.

In addition, among the effects of C. obtusa essential oil (phytonchid), the deodorizing effect is obtained through the decomposition of odor-causing substances through chemical neutralization. Thus, C. obtusa essential oil (phytonchid) provides complete deodorization, and is very safe. The present invention will employ C. obtusa essential oil (phytonchid) for the particular antimicrobial activity, deodorizing activity and unique scent thereof.

The pyroligneous liquor is obtained through extraction of the smoke released when wood burns (carbonation) using a cooling system. The obtained liquid, which is called
crude pyroligneous liquor, is ripened for a period of six months or longer and then
purified to yield a reddish-brown clear liquid, which is called pyroligneous liquor.
Thus, the pyroligneous liquor results from the gasification and condensation of all
wood energies during wood carbonation. For this reason, the pyroligneous liquor has a
bitter taste of acetic acid and a pungent odor like a burning smell.

The best quality product of pyroligneous liquor is obtained from yellow smoke
emitted when the temperature of the charcoal kiln exhaust port is 80-150°C. Since such
yellow smoke has fewer toxic substances, the crude pyroligneous liquor is extracted
from the yellow smoke. The crude pyroligneous liquor (pyroligneous liquor collected
from the charcoal smoke) is stored in a container for a long period of time to separate
three layers: upper, middle and lower layers. The middle-layer liquid dissolved in
water is the pyroligneous liquor. Purified pyroligneous liquor contains organic acids as
major components, as well as minerals and vitamins. The organic acids including
acetic acid are contained in an amount of about 3%. Calcium as a mineral component
is contained in an amount of about 40 ppm. Vitamins B₁ and B₂ are also contained.

Microorganisms are usually detected in water which has been allowed to stand at
room temperature for only one day. However, although purified pyroligneous liquor is
rich in organic materials and thus is in a nutritional state suitable for microbial growth,
no detectable E. coli or other general bacteria are observed even upon storage thereof
for a period of one month or longer, indicating that purified pyroligneous liquor itself
functions to inhibit microbial growth.

Far infrared rays have been generally known to be emitted only by minerals, but py-
roligneous liquor also emits far infrared rays. When about 10 ml of such pyroligneous
liquor is added to water contained in a bath at home, the bath water exhibits thermal
water-like efficacy on cold hypersensitivity, atopic dermatitis, rough skin, and the like.
The pyroligneous liquor is also effective in eliminating offensive odors. The present
invention will employ pyroligneous liquor for its effect of inhibiting microbial growth.

People have strengthened the immune system and prevented and treated diseases for
several thousand years using foods, herbal medicines, fasting and intestinal cleaning.
According to the World Health Organization, herbal medicines are the most widely
used drugs nowadays. In practice, the efficacy of artificially synthesized drugs is not
comparable to that of natural drugs. Artificially synthesized drugs used as therapeutic
agents in public therapies usually carry a risk of side effects, and also do not treat the
fundamental causes of diseases.

Thus, treatment of contagious diseases with a therapy known to the public is a
relatively new strategy, but such a strategy is greatly problematic because pathogens
are transformed. Since the number of diseases that cannot be treated with antibiotics is
increasing worldwide, the efficacy of antibiotics is rapidly decreasing. For these
reasons, scientists have become concerned with plants that have been traditionally proven to have efficacy against diseases.

The present invention is intended to eliminate unpleasant odors generated from women's menstrual fluids or other bodily secretions, prevent microbial propagation, and relieve pain due, for example, to menstrual flow through the pharmaceutical action and functionality of the aforementioned herbal materials, green tea leaves, *Sophora flavescens*, mugwort (or Artemisiae Folium), *C. obtusa* essential oil and pyroliigneous liquor. This is achievable through a liquid extract obtained by incubation in boiling water, a composition in a gel form obtained by concentrating the liquid extract under reduced pressure, and a composition in a fine powder form obtained by lyophilizing and pulverizing the composition in the gel form.

In particular, a sanitary napkin containing an herbal composition according to the present invention may be constructed by incubating herbal materials in boiling water and impregnation-drying a liquid herbal extract thus obtained in a menstrual fluid-absorbing pad. Also, the sanitary napkin may be constructed by concentrating the liquid herbal extract obtained by incubation in boiling water under reduced pressure and immobilizing a resulting herbal composition in a gel form in a menstrual fluid-absorbing pad through application-drying. Further, the sanitary napkin may be constructed by lyophilizing the herbal composition in the gel form, pulverizing the dried herbal composition, and applying the herbal composition in the fine powder form to a menstrual fluid-absorbing pad. The procedure for each construction of the sanitary napkin is as follows.

FIG. 3 is a perspective view of a sanitary napkin containing an herbal composition according to an embodiment of the present invention. FIG. 4 is a diagram showing a method of manufacturing the sanitary napkin containing the herbal composition according to FIG. 3.

Referring to FIGS. 3 and 4, a sanitary napkin 100 contains an herbal composition 140 that is impregnation-dried in a menstrual fluid-absorbing pad 130. As illustrated in FIGS. 3 and 4, the sanitary napkin 100 containing the herbal composition 140 according to the present invention has the same basic construction as a conventional one, that is, comprises a permeable top sheet 110 to pass bodily secretions; an impermeable back sheet 120 fused to the top sheet 110; and a menstrual fluid-absorbing pad 130, which is inserted and immobilized between the top sheet 110 and the back sheet 120 to absorb bodily secretions that permeate the top sheet 110.

The sanitary napkin 110 containing the herbal composition according to the present invention is different from a conventional one in that a liquid herbal composition 140, which is prepared by incubating herbal materials of green tea leaves, *Sophora flavescens* and mugwort (or Artemisiae Folium) in boiling water, and mixing the
resulting herbal extract with *Chamaecyparis obtusa* essential oil and pyroligneous liquor at a predetermined ratio, is impregnation-dried in the menstrual fluid-absorbing pad 130.

The herbal materials, green tea leaves, *Sophora flavescens* and mugwort (or *Artemisiae Folium*) are mixed at a ratio of 35-45: 25-35: 30-40 wt%. The herbal extract obtained by incubating the herbal materials, green tea leaves, *Sophora flavescens* and mugwort (or *Artemisiae Folium*), in boiling water is mixed with *C. obtusa* essential oil and pyroligneous liquor at a ratio of 50-60: 30-40: 10-20 wt%.

Immediately after being collected from the green tea tree, the green tea leaves are heated to destroy oxidases, thereby maintaining the leaves green, and to evaporate moisture, thereby make the leaves supple and well-rolled. The leaves are further heated to remove most moisture so that they are somewhat brittle. *Sophora flavescens* is fresh or dried leaves, stems or roots (Sophorae Radix) thereof. Mugwort (or *Artemisiae Folium*) is fresh or dried. *C. obtusa* essential oil is used as it is, and the pyroligneous liquor is used as it is or after being diluted in water at a ratio of up to 500.

The sanitary napkin 110 containing the herbal composition as illustrated in FIGS. 3 and 4 is prepared according to the following process. First, the herbal materials, green tea leaves, *Sophora flavescens* and mugwort (or *Artemisiae Folium*), are mixed at a predetermined ratio (S100). Herein, the herbal materials, green tea leaves, *Sophora flavescens* and mugwort (or *Artemisiae Folium*), are mixed at a ratio of 35-45: 25-35: 30-40 wt%.

After the herbal materials, green tea leaves, *Sophora flavescens* and mugwort (or *Artemisiae Folium*) are mixed at a ratio of 35-45: 25-35: 30-40 wt%, the mixed herbal materials are mixed with water at a predetermined ratio (S1 10). Herein, 30-50 wt% of the herbal materials are mixed with 50-70 wt% of water.

After 30-50 wt% of the herbal materials are mixed with 50-70 wt% of water, they are incubated in boiling water at a predetermined temperature for a predetermined period of time to release effective ingredients from the herbal materials, thereby obtaining a liquid herbal extract containing effective ingredients of the herbal materials (S120). Herein, the incubation in boiling water is carried out at 100-120°C for a period ranging from 5 hrs to 24 hrs.

After the liquid herbal extract is obtained through incubation in boiling water at a predetermined temperature for a predetermined period of time, the liquid herbal extract is mixed with *C. obtusa* essential oil and pyroligneous liquor at a predetermined ratio to yield a liquid herbal composition 140 (S130). Herein, the liquid herbal extract is mixed with *C. obtusa* essential oil and pyroligneous liquor at a ratio of 50-60: 30-40: 10-20 wt%.

After the liquid herbal composition 140 is obtained by mixing 50-60 wt% of the
liquid herbal extract with 30-40 wt% of *C. obtusa* essential oil and 10-20 wt% of pyroligneous liquor, it is impregnation-dried in the menstrual fluid-absorbing pad 130 (S140).

The menstrual fluid-absorbing pad 130 in which the liquid herbal composition 140 is impregnation-dried according to the aforementioned process is inserted between the top sheet 110 and the back sheet 120 and immobilized therebetween through deposition of the top sheet 110 and the back sheet 120.

FIG. 5 is a cross-sectional view of a sanitary napkin containing an herbal composition according to another embodiment of the present invention. FIG. 6 is a diagram showing a method of manufacturing the sanitary napkin containing the herbal composition according to FIG. 5.

FIGS. 5 and 6 show a sanitary napkin containing an herbal composition according to another embodiment of the present invention and a process for manufacturing the sanitary napkin. Referring to FIGS. 5 and 6, a sanitary napkin 200 containing an herbal composition according to another embodiment of the present invention is prepared as follows. First, the herbal materials, green tea leaves, *Sophoraflavescens* and mugwort (or Artemisiae Folium), are mixed at a predetermined ratio (S200). Herein, the herbal materials, green tea leaves, *Sophoraflavescens* and mugwort (or Artemisiae Folium), are mixed at a ratio of 35-45: 25-35: 30-40 wt%.

After the herbal materials, green tea leaves, *Sophoraflavescens* and mugwort (or Artemisiae Folium), are mixed at a ratio of 35-45: 25-35: 30-40 wt%, the mixed herbal materials are mixed with water at a predetermined ratio (S210). Herein, 30-50 wt% of the herbal materials are mixed with 50-70 wt% of water.

After 30-50 wt% of the herbal materials are mixed with 50-70 wt% of water, they are incubated in boiling water at a predetermined temperature for a predetermined period of time to release effective ingredients from the herbal materials, thereby obtaining a liquid herbal extract containing effective ingredients of the herbal materials (S220). Herein, the incubation in boiling water is carried out at 100-120°C for a period ranging from 5 hrs to 24 hrs.

After the liquid herbal extract is obtained through incubation in boiling water at a predetermined temperature for a predetermined period of time, the liquid herbal extract is mixed with *C. obtusa* essential oil and pyroligneous liquor at a predetermined ratio to yield a liquid herbal composition 140 (S230). Herein, 50-60 wt% of the liquid herbal extract is mixed with 30-40 wt% of *C. obtusa* essential oil and 10-20 wt% of pyroligneous liquor.

After the liquid herbal composition is obtained by mixing 50-60 wt% of the liquid herbal extract with 30-40 wt% of *C. obtusa* essential oil and 10-20 wt% of pyroligneous liquor, it is concentrated under reduced pressure to provide an herbal
composition 240 in a gel form (S240).

After the herbal composition 240 in the gel form is obtained by concentrating the liquid herbal composition under reduced pressure, it is applied onto and dried in the upper surface of a menstrual fluid-absorbing pad 230 facing the lower surface of a top sheet 210 (S250).

The menstrual fluid-absorbing pad 230 in which the herbal composition 240 in the gel form is application-dried according to the aforementioned process is inserted between the top sheet 210 and a back sheet 220 and immobilized therebetween through deposition of the top sheet 210 and the back sheet 220.

In summary, the herbal composition-containing sanitary napkin 200 according to another embodiment of the present invention is manufactured by mixing 35-45 wt% of green tea leaves, 25-35 wt% of Sophoraflavescens and 30-40 wt% of mugwort (or Artemisiae Folium), mixing 30-50 wt% of the mixed herbal materials with 50-70 wt% of water, incubating the resulting mixture in boiling water at 100-120°C for a period ranging from 5 hrs to 24 hrs to obtain an herbal extract, mixing 50-60 wt% of the herbal extract with 30-40 wt% of C. obtusa essential oil and 10-20 wt% of edible pyroligneous liquor, concentrating the resulting mixture under reduced pressure into a gel form, and application-drying the herbal composition 240 in the gel form in the upper surface of the menstrual fluid-absorbing pad 230, which closely contacts the lower surface of the top sheet 210.

FIG. 7 is a perspective view of a sanitary napkin containing an herbal composition according to a further embodiment of the present invention. FIG. 8 is a diagram showing a method of manufacturing the sanitary napkin containing the herbal composition according to FIG. 7.

FIGS. 7 and 8 show a sanitary napkin containing an herbal composition according to a further embodiment of the present invention and a process for manufacturing the sanitary napkin. Referring to FIGS. 7 and 8, a sanitary napkin 300 containing an herbal composition according to a further embodiment of the present invention is prepared as follows. First, the herbal materials, green tea leaves, Sophoraflavescens and mugwort (or Artemisiae Folium) are mixed at a predetermined ratio (S300). Herein, the herbal materials, green tea leaves, Sophoraflavescens and mugwort (or Artemisiae Folium), are mixed at a ratio of 35-45: 25-35: 30-40 wt%.

After the herbal materials, green tea leaves, Sophoraflavescens and mugwort (or Artemisiae Folium), are mixed at a ratio of 35-45: 25-35: 30-40 wt%, the mixed herbal materials are mixed with water at a predetermined ratio (S3 10). Herein, 30-50 wt% of the herbal materials are mixed with 50-70 wt% of water.

After 30-50 wt% of the herbal materials are mixed with 50-70 wt% of water, they are incubated in boiling water at a predetermined temperature for a predetermined
period of time to release effective ingredients from the herbal materials, thereby obtaining a liquid herbal extract containing effective ingredients of the herbal materials (S320). Herein, the incubation in boiling water is carried out at 100-120°C for a period ranging from 5 hrs to 24 hrs.

After the liquid herbal extract is obtained through incubation in boiling water at a predetermined temperature for a predetermined period of time, the liquid herbal extract is mixed with C. obtusa essential oil and pyrolineous liquor at a predetermined ratio to yield a liquid herbal composition (S330). Herein, 50-60 wt% of the liquid herbal extract is mixed with 30-40 wt% of C. obtusa essential oil and 10-20 wt% of pyrolineous liquor.

After the liquid herbal composition is obtained by mixing 50-60 wt% of the liquid herbal extract with 30-40 wt% of C. obtusa essential oil and 10-20 wt% of pyrolineous liquor, it is concentrated under reduced pressure to provide an herbal composition in a gel form (S340).

After the herbal composition in the gel form is obtained by concentrating the liquid herbal composition 340 under reduced pressure, it is lyophilized (S350).

After the herbal composition in the gel form obtained by concentrating the liquid herbal composition under reduced pressure is lyophilized, it is pulverized to yield an herbal composition 340 in a fine powder form (S360).

The herbal composition 340 in the fine powder form, which is obtained in the aforementioned pulverization step, is evenly applied to a menstrual fluid-absorbing pad 330 (S370). Herein, the herbal composition 340 in the fine powder form is evenly applied onto the upper surface of the menstrual fluid-absorbing pad 330, which closely contacts the lower surface of a top sheet 310.

The herbal composition 340 in the fine powder form, which is evenly applied onto the upper surface of the menstrual fluid-absorbing pad 330, which closely contacts the lower surface of the top sheet 310, may be immobilized without any immobilization means between the lower surface of the top sheet 310 and the upper surface of the menstrual fluid-absorbing pad 330 by inserting the menstrual fluid-absorbing pad 330 between the top sheet 310 and a back sheet 320 and depositing the top sheet 310 and the back sheet 320.

Since the menstrual fluid-absorbing pad 330 should absorb and store a lot of bodily secretions, such as menstrual blood, absorbed thorough the top sheet 310, it is composed of materials that provide a lot of storage space, a non-woven fabric (air-laid sap sheet) and a pulp material. Thus, the herbal composition 340 in the fine powder form is positioned in space between the non-woven fabric (air-laid sap sheet) and the pulp material and is immobilized by fibrous tissues.

Alternatively, after being evenly applied to the upper surface of the menstrual fluid-
absorbing pad 330, the herbal composition 340 in the fine powder form may be im-
mobilized in such a way that it is pressed onto the upper surface of the menstrual fluid-
absorbing pad 330 thorough heat treatment under pressure by thermal bonding using a heated heater.

In summary, the herbal composition-containing sanitary napkin 300 according to a further embodiment of the present invention is manufactured by mixing 35-45 wt% of green tea leaves, 25-35 wt% of Sophora flavescens and 30-40 wt% of mugwort (or Artemisiae Folium), mixing 30-50 wt% of the mixed herbal materials with 50-70 wt% of water, incubating the resulting mixture in boiling water at 100-120°C for a period ranging from 5 hrs to 24 hrs to obtain an herbal extract, mixing 50-60 wt% of the herbal extract with 30-40 wt% of C. obtusa essential oil and 10-20 wt% of edible py-
roligneous liquor, concentrating the resulting mixture under reduced pressure into a gel form, lyophilizing the herbal composition in the gel form, pulverizing the dried herbal composition, and applying the resulting herbal composition 340 in the fine powder form to the upper surface of the menstrual fluid-absorbing pad 330, which closely contacts the lower surface of the top sheet 310.

As described above, a herbal composition-containing sanitary napkin (100, 200 and 300) according to the present invention is manufactured by impregnation-drying the herbal composition 140, which is prepared by mixing green tea leaves, Sophora flavescens and mugwort (or Artemisiae Folium) at a ratio of 35-45: 25-35: 30-40 wt%, incubating the mixed herbal materials in boiling water, and mixing 50-60 wt% of the resulting herbal extract with 30-40 wt% of C. obtusa essential oil and 10-20 wt% of pyroligneous liquor, in the menstrual fluid-absorbing pad 130 (see, FIGS. 3 and 4); application-drying the herbal composition 240 in the gel form, which is prepared by con-
centrating under reduced pressure the herbal composition in which the herbal extract is mixed with C. obtusa essential oil and pyroligneous liquor, in the upper surface of the menstrual fluid-absorbing pad 230 (see, FIGS. 5 and 6); and applying the herbal composition 340 in the fine powder form, which is prepared by lyophilizing and pulverizing the herbal composition in the gel form, in the upper surface of the menstrual fluid-absorbing pad 330 (see, FIGS. 7 and 8), thereby preventing microbial propagation attributable to absorbed bodily secretions by the pharmaceutical action of the herbal composition, leading to a clean and sanitary condition.

The present invention is not limited to the aforementioned embodiments. Therefore, it will be appreciated that various changes and modifications can be made within the spirit and scope of the present invention.
Claims

[1] A sanitary napkin containing an herbal composition, comprising a permeable top sheet that contacts the skin and passes bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions that permeate the top sheet, wherein the herbal composition is prepared by mixing 35-45 wt% of green tea leaves, 25-35 wt% of Sophoraflavescens and 30-40 wt% of mugwort (or Artemisiae Folium), mixing 30-50 wt% of the mixed herbal materials with 50-70 wt% of water, incubating a resulting mixture in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract, and mixing 50-60 wt% of the herbal extract with 30-40 wt% of essential oil from Chamaecyparis obtusa and 10-20 wt% of edible pyroligneous liquor, and the herbal composition is impregnated and dried in the menstrual fluid-absorbing pad, which closely contacts a lower surface of the top sheet.

[2] A sanitary napkin containing an herbal composition, comprising a permeable top sheet that contacts the skin and passes bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions that permeate the top sheet, wherein the herbal composition is prepared by mixing 35-45 wt% of green tea leaves, 25-35 wt% of Sophoraflavescens and 30-40 wt% of mugwort (or Artemisiae Folium), mixing 30-50 wt% of the mixed herbal materials with 50-70 wt% of water, incubating the resulting mixture in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract, mixing 50-60 wt% of the herbal extract with 30-40 wt% of essential oil from Chamaecyparis obtusa and 10-20 wt% of edible pyroligneous liquor, and concentrating a resulting mixture under reduced pressure into a gel form, and the herbal composition in the gel form is applied to and dried in the upper surface of the menstrual fluid-absorbing pad, which closely contacts a lower surface of the top sheet.

[3] A sanitary napkin containing an herbal composition, comprising a permeable top sheet that contacts the skin and passes bodily secretions; an impermeable back sheet that is the same size and shape as the top sheet and is fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions that permeate the top sheet, wherein the herbal composition is prepared by mixing 35-45 wt% of green
tealeaves, 25-35 wt% of *Sophoraflavescens* and 30-40 wt% of mugwort (or *Artemisiae Folium*), mixing 30-50 wt% of the mixed herbal materials with 50-70 wt% of water, incubating the resulting mixture in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract, mixing 50-60 wt% of the herbal extract with 30-40 wt% of essential oil from *Chamaecyparis obtusa* and 10-20 wt% of edible pyroligneous liquor, concentrating a resulting mixture under reduced pressure to a gel form, lyophilizing the herbal composition in the gel form, and pulverizing the dried herbal composition into fine powder, and the herbal composition in the fine powder is applied to the menstrual fluid-absorbing pad, which closely contacts a lower surface of the top sheet.

A method of manufacturing a sanitary napkin containing an herbal composition and comprising a permeable top sheet that contacts the skin and passes bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions that permeate the top sheet, the method comprising:

(a) mixing 35-45 wt% of green tea leaves, 25-35 wt% of *Sophoraflavescens* and 30-40 wt% of mugwort (or *Artemisiae Folium*);
(b) mixing 30-50 wt% of herbal materials mixed at a predetermined ratio in step (a) with 50-70 wt% of water;
(c) incubating the resulting mixture of step (b), consisting of 30-50 wt% of the mixed herbal materials and 50-70 wt% of water, in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract;
(d) mixing 50-60 wt% of a liquid herbal extract, which is obtained by incubation in boiling water in step (c), with 30-40 wt% of essential oil from *Chamaecyparis obtusa* and 10-20 wt% of edible pyroligneous liquor to yield the herbal composition; and
(e) impregnation-drying the herbal composition obtained in step (d) in the menstrual fluid-absorbing pad, and immobilizing the menstrual fluid-absorbing pad between the top sheet and the back sheet.

A method of manufacturing a sanitary napkin containing an herbal composition and comprising a permeable top sheet that contacts the skin and passes bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions that permeate the top sheet, the method comprising:

(a) mixing 35-45 wt% of green tea leaves, 25-35 wt% of *Sophoraflavescens* and
30-40 wt% of mugwort (or Artemisiae Folium);
(b) mixing 30-50 wt% of herbal materials mixed at a predetermined ratio in step (a) with 50-70 wt% of water;
(c) incubating the resulting mixture of step (b), consisting of 30-50 wt% of the mixed herbal materials and 50-70 wt% of water, in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract;
(d) mixing 50-60 wt% of a liquid herbal extract, which is obtained by incubation in boiling water in step (c), with 30-40 wt% of essential oil from Chamaecyparis obtusa and 10-20 wt% of edible pyroligneous liquor to yield the herbal composition;
(e) concentrating the herbal composition obtained in step (d) under reduced pressure into a gel form; and
(f) application-drying the herbal composition in the gel form, which is obtained in step (e), in an upper surface of the menstrual fluid-absorbing pad, which closely contacts a lower surface of the top sheet, and immobilizing the menstrual fluid-absorbing pad between the top sheet and the back sheet.

A method of manufacturing a sanitary napkin containing an herbal composition and comprising a permeable top sheet that contacts the skin and passes bodily secretions; an impermeable back sheet having the same size and shape as the top sheet and being fused to the top sheet; and a menstrual fluid-absorbing pad, which is inserted and immobilized between the top sheet and the back sheet to absorb bodily secretions that permeate the top sheet, the method comprising:
(a) mixing 35-45 wt% of green tea leaves, 25-35 wt% of Sophoraflavescens and 30-40 wt% of mugwort (or Artemisiae Folium);
(b) mixing 30-50 wt% of herbal materials mixed at a predetermined ratio in step (a) with 50-70 wt% of water;
(c) incubating the resulting mixture of step (b), consisting of 30-50 wt% of the mixed herbal materials and 50-70 wt% of water, in boiling water at 100-120°C for a period ranging from 5 hours to 24 hours to obtain an herbal extract;
(d) mixing 50-60 wt% of a liquid herbal extract, which is obtained by incubation in boiling water in step (c), with 30-40 wt% of essential oil from Chamaecyparis obtusa and 10-20 wt% of edible pyroligneous liquor to yield the herbal composition;
(e) concentrating the herbal composition obtained in step (d) under reduced pressure into a gel form;
(f) lyophilizing the herbal composition in the gel form, which is obtained in step (e);
(g) pulverizing the herbal composition dried in step (f) into fine powder; and
(h) applying the herbal composition pulverized into fine powder in step (g) to an upper surface of the menstrual fluid-absorbing pad, which closely contacts a lower surface of the top sheet, and immobilizing the menstrual fluid-absorbing pad between the top sheet and the back sheet.
Start

1. Mixing of herbal materials

2. Mixing of the mixed herbal materials with water

3. Incubation in boiling water to obtain liquid herbal extract

4. Mixing of the herbal extract with *C. obtusa* essential oil and pyroligneous liquor to yield herbal composition

5. Impregnation-drying of the herbal composition in menstrual fluid-absorbing pad

End
[Fig. 6]

Start

Mixing of herbal materials

Mixing of the mixed herbal materials with water

Incubation in boiling water to obtain liquid herbal extract

Mixing of the herbal extract with C. obtusa essential oil and pyroligneous liquor to yield herbal composition

Concentration of the herbal composition under reduced pressure to yield herbal composition in gel form

Application-drying of the herbal composition in gel form in upper surface of menstrual fluid-absorbing pad

End
Start

1. Mixing of herbal materials (S300)
2. Mixing of the mixed herbal materials with water (S310)
3. Incubation in boiling water to obtain liquid herbal extract (S320)
4. Mixing of the herbal extract with C. obtusa essential oil and pyrolygous liquor to yield herbal composition (S330)
5. Concentration of the herbal composition under reduced pressure to yield herbal composition in gel form (S340)
6. Lyophilization of the herbal composition in gel form (S350)
7. Pulverization of the lyophilized herbal composition into fine powder (S360)
8. Application of the herbal composition in fine powder form in the upper surface of menstrual fluid-absorbing pad (S370)

End
A. CLASSIFICATION OF SUBJECT MATTER

A61L 15/44(2006.01)

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 A61L 15/44, 15/46

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
KR, JP IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKIPASS(KIPO internal) "Keywords sanitary napkin, herb, top sheet, back sheet, absorbing pad and similar terms"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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See patent family annex

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Date of mailing of the international search report

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