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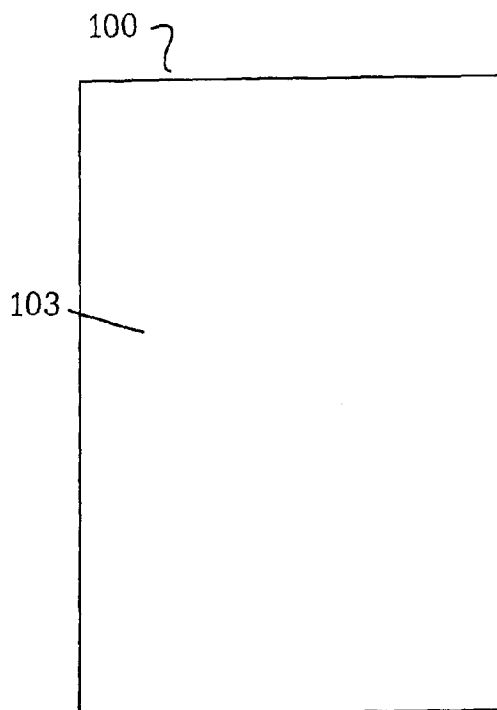


Figure 1A

(57) Abstract: A skin patch for absorbing toxins from a body includes a first side and a second side. The second side includes a surface configured for absorbing and retaining the toxins. The surface includes a plurality of openings configured for enhancing transmission of far infrared ray emission into a skin when the second side is placed in contact with the skin. A granular mixture of natural ingredients includes wood vinegar, dextrin, and at least one additional ingredient selected from the group consisting of a mixture of natural ingredients, the mixture comprising wood vinegar, dextrin, and at least one additional ingredient selected from the group consisting of: bamboo vinegar, chitosan, loquat leaf, houttuynia cordata, vitamin C, tourmaline, vegetable fiber, sporopollenin, mushroom chitosan, peppermint, dandelion, blackhaw, fennel, licorice, capsaicin, agaricus, grapefruit, citrus, vaccinium berries, rubus berries, lavender, milk thistle, green tea, cinnamon, Japanese ginseng, Japanese seaweed, glucomannan, aloe vera, ginger, arnica, nattokinase, winter cherry, holy basil, eucalyptus, amethyst, diatomaceous earth, and zeolite.

SKIN PATCH FOR ABSORBING TOXINS FROM THE BODY

The present invention relates generally to skin patches. More particularly, the invention relates to a skin patch that absorbs toxins from the body using infrared rays.

Far infrared rays are thought to have the potential to be used to generate blood circulation in the body. In 1870, Dr. Pleasanton, a researcher in the United States, published research showing the relationship between light frequency and the rate of growth of cells and tissues, as well as their rate of cell division. Also, Dr. Neils Finsen, cured lesions and variola using red and infrared rays.

More recent research performed by Tiina Karu, M.D., of the Laser Technology Center in Russia, holds that this spectrum of light speeds up cellular metabolic processes, such as, but not limited to, stimulating the activity of mitochondria, and triggering enzyme activity as well as the healing, regeneration, and normalization of damaged cell tissue. Sunshine is known to emit far infrared rays. Electricity can also generate far infrared rays. A method of far infrared generation with electricity is disclosed in US Patent No. 6,610,082. However, the conversion of sunshine or electricity to generate far infrared rays may not be an efficient method for promoting blood circulation and other cellular processes in the body.

In view of the foregoing, there is a need for improved techniques for providing far infrared rays for use in promoting blood circulation and other cellular processes in the body that do not require sunshine or electricity.

To achieve the foregoing and other objects and in accordance with the purpose of the invention, a skin patch for absorbing toxins from the body is presented in claim 1.

The skin patch according to the invention is specifically adapted to absorb toxins from a body. For this purpose it comprises a first side and a second side. The second side comprises a surface adapted for absorbing and retaining the toxins. The surface comprises a plurality of openings adapted for enhancing transmission of far infrared ray emission into a skin when the second side is placed in contact with the skin.

Between the first side and the second side of the skin patch, a granular mixture of natural ingredients is comprised. The mixture comprises wood vinegar, dextrin, and at least one additional ingredient selected from the group consisting of bamboo vinegar, chitosan, loquat leaf, houttuynia cordata, vitamin C, tourmaline, vegetable
5 fiber, sporopollenin, mushroom chitosan, peppermint, dandelion, blackhaw, fennel, licorice, anethole, glycyrrhizic acid, capsaicin, beta-glucans, pectin, anthocyanins, agaricus, grapefruit, citrus, vaccinium berries, rubus berries, lavender, milk thistle, green tea, epigallocatechin gallate and L-theanine, cinnamon, wasabi, Japanese ginseng, Japanese seaweed, glucomannan, aloe vera, zingerone, shogaol, ginger,
10 gingerol, arnica, nattokinase, winter cherry, beta-elemene, glutathione, holy basil, eucalyptus, amethyst, diatomaceous earth, and zeolite.

The basic components of the natural ingredients are vinegar, for example wood or bamboo vinegar, to inhibit bacterial and fungal growth. The reason is that vinegar has
15 a low concentration of acetic acid in an average range of about 5 to 15 %. In addition to this antibacterial and antifungal action, vinegar is a vasodilator. Vasodilator is a component suitable for widening the opening of the blood vessels and increasing the flow of fluids in the body. This vasodilation effect has been found in case vinegar is taken orally and with skin patches that are applied over a period of time on the skin of
20 a subject to be treated.

Other features, advantages, and objects of the present invention will become more apparent and be more readily understood from the following detailed description of preferred embodiments.

25 According to a preferred embodiment, a skin patch for advantageously absorbing toxins from a body is presented. The skin patch includes a first side comprising a heat reflective foil and/or a non-woven rayon surface which optionally is covered by a heat-reflective foil. The heat-reflective foil of the skin patch according to this
30 embodiment improves the far infrared absorption of the infrared rays into the skin and, thereby, the vasodilation effect. The foil is a means for reflecting the far infrared rays produced between the first and the second side of the skin patch into the body. More preferably, the heat-reflective foil comprises a metallic foil, such as a titanium or aluminum foil, which optionally comprises carbon particles inside the foil structure
35 and/or sprinkled on the foil surface. Thus, the heat-reflective foil such as a titanium carbon fused foil is comprised of a titanium foil as main component and carbon

particles which have been provided, e.g. sprinkled, on top of the titanium foil. The carbon particles preferably are integrally combined ("fused") with the titanium foil on its surface or in its metallic structure.

5 The exemplified metal component titanium has a good biocompatibility. The carbon particles are advantageous in providing an improved bio-electricity to the skin patch of the invention. In addition, the use of carbon improves the manufacturing process because the carbon particles can lower the humidity level. Humidity is a problem in most food or pharmaceutical packaging as it reduces shelf life to the products. As the
10 ingredients of the skin patches are liable to absorb water, especially if ingredient particles having a significant porosity are used, the use of carbon particles is advantageous. Moreover, carbon removes or lowers odor. This is particularly advantageous if natural ingredients having a significant natural odor are used in the skin patch.

15 In a further preferred embodiment of the skin patch according to the invention the foil comprises a magnetic material or a number of magnetic cores supported on the foil or compressed between two foils. The magnetic material or cores stipulate the effects of the far-infrared absorption and, thus, improves the detoxification of toxins
20 from the body.

It is preferred that the natural ingredients are sealed between the first side and the second side of the skin patches. Thus, the active material for the detoxification treatment is safely enclosed between the two sides in such a way that the first side
25 functions as a far-infrared ray reflecting surface and the second side which is placed on the skin functions as absorption means for the toxins.

According to a further embodiment of the skin patch of the invention, it is preferred that an adhesive is comprised on a part of the second side for joining the patch to the
30 skin. Joining the patch to the skin means that the adhesive is provided on the whole surface of the second side or at least at the outer edges of the second side of the skin patch to fix the skin patch at the respective place on the body of a subject to be treated.

35 Alternatively or in addition to the adhesive at the second side, the skin patch according to a further embodiment further optionally comprises means for joining the

skin patch to the skin with the second side, wherein the means are provided at the first side. This means can be a strip or a plaster used for sticking the skin patch on the skin of a subject to be treated. These means are suitably adjusted to hold the skin patch during the whole detoxification reaction, which can be a number of hours, for example, 2 to 12 hours, preferably 3 to 10 hours, more preferably, 4 to 8 hours, in particularly bedtime.

In an embodiment of the invention, the at least one additional natural ingredient is prepared from extracting a plant or naturally-occurring substance containing the ingredient with an extraction solvent. After its extraction, the ingredient is contained in the patch in its solid form achieved by removing the extraction solvent or as liquid extract being supported on a solid support structure. Suitable extraction methods are well known to the skilled person.

A further embodiment of the skin patch of the invention contains the natural ingredients in a porous form, that means that at least a part of the natural ingredients are formed as granules having a porous surface. The porous form is advantageous in that toxins can be absorbed not only in the absorbing material of the second side but also within the granules placed between the first and the second side of the skin patch.

It is preferred that the granules having a porous surface have a pore diameter equivalent of less than 30 nm, more preferably about 5 nm to about 25 nm in particular of about 8 to 12 nm, e.g. in average about 10 nm. If the shape is not circular, the opening shall have a similar opening area than a circular opening. Therefore, the term "pore diameter equivalent" expresses the diameter or width of the opening regardless of its shape in the form of the value equivalent to the diameter of a circular opening. Depending on the form of the opening, the skilled person knows respective calculations and can easily calculate the respective value.

The advantage of small pores is that the number of pores provided on the granule surface can be increased compared to bigger pores. Thus, the whole active surface for absorbing toxins can be improved, that means increased regarding the identical surface area, with smaller pores.

In order to increase the surface of the granules, it is preferred that the granules have a shape in the form of a capsule or a cigar with a diameter r and a length a . A granule having a spherical form (radius r) has a surface area A_{Sph} according to formula (1):

5
$$A_{\text{Sph}} = 4 * (\pi) * r * r \quad (1)$$

The surface area of a capsule A_{Cap} having a radius r and a length a is calculated by formula (2):

$$A_{\text{Cap}} = 2 * (\pi) * r * (2r + a) = A_{\text{Sph}} + 2 * (\pi) * r * a \quad (2)$$

10

The granules with a different shape as a sphere, such as the capsules or cigar-shaped granules have a significantly larger surface as spherical granules. In case the granule size (diameter) cannot be enlarged to increase the surface area, the change of the shape from a sphere to a capsule improves the surface area by the factor $2 * (\pi) * r * a$, which is about $6 * r * a$. The manufacturing of capsules, that means increasing the side length of the spheres, is easier than manufacturing larger spheres. Therefore, the skin patch according to this embodiment is advantageous in its surface area compared to spherical granules.

15

20 According to a further embodiment, the skin patch is adapted to be joined to the skin of a bottom of a foot, that means has the size and shape suitable to be placed as a foot pad. As the skin at the foot is available for the detoxification treatment supported by the natural ingredients and the far-infrared energy provided by the skin patches of the invention, the skin patches are suitable for the application in a detoxification method of a subject by means of placing at least one of the patches at the bottom of
25 the foot for an applicable treatment period. The treatment period is preferably a few hours, more preferably during bedtime.

25

Advantages of embodiments of the present invention will be apparent from the following detailed description of the exemplary embodiments. The following detailed description should be considered in conjunction with the accompanying figures in which:

30

Figures 1A and 1B illustrate an exemplary toxin-absorbing patch, in accordance with an embodiment of the present invention. Figure 1A shows the front of the patch, and Figure 1B shows the back of the patch.

35

Unless otherwise indicated illustrations in the figures are not necessarily drawn to scale.

5 Aspects of the invention are disclosed in the following description and related drawings directed to specific embodiments of the invention. Alternate embodiments may be devised without departing from the spirit or the scope of the invention. Additionally, wellknown elements of exemplary embodiments of the invention will not be described in detail or will be omitted so as not to obscure the relevant details of
10 the invention. Further, to facilitate an understanding of the description discussion of several terms used herein follows.

As used herein, the word "exemplary" means "serving as an example, instance or illustration." The embodiments described herein are not limiting, but rather are
15 exemplary only. It should be understood that the described embodiment are not necessarily to be construed as preferred or advantageous over other embodiments. Moreover, the terms "embodiments of the invention", "embodiments" or "invention" do not require that all embodiments of the invention include the discussed feature, advantage or mode of operation.

20 The present invention is best understood by reference to the detailed figures and description set forth herein. Embodiments of the invention are discussed below with reference to the Figures. However, those skilled in the art will readily appreciate that the detailed description given herein with respect to these figures is for explanatory
25 purposes as the invention extends beyond these limited embodiments. For example, it should be appreciated that those skilled in the art will, in light of the teachings of the present invention, recognize a multiplicity of alternate and suitable approaches, depending upon the needs of the particular application, to implement the functionality of any given detail described herein, beyond the particular implementation choices in
30 the following embodiments described and shown. That is, there are numerous modifications and variations of the invention that are too numerous to be listed but that all fit within the scope of the invention. Also, singular words should be read as plural and vice versa and masculine as feminine and vice versa, where appropriate, and alternative embodiments do not necessarily imply that the two are mutually
35 exclusive. The present invention will now be described in detail with reference to embodiments thereof as illustrated in the accompanying drawings.

Preferred embodiments of the present invention provide a toxin-absorbing patch that is used to generate far infrared rays from natural ingredients without the help of electricity and sunshine. Exemplary purposes of preferred embodiments of the present invention are to help improve blood circulation and to reduce waste and toxins in the body. In a preferred embodiment, a toxin-absorbing patch comprises powdered herbal ingredients. The ingredients are provided in the form of a granular mixture. At least a number, that means at least one, preferably two or more, more preferably all of the ingredients are provided as granules in the form of capsules, for example. The patch is applied to the sole of a foot and emits far infrared rays onto the foot that causes the foot to perspire during application. The warmth from the far infrared rays helps improve blood circulation, and the perspiration absorbed into the patch may contain toxic waste such as, but not limited to, heavy metals. In preferred embodiments, the patch is easy to apply and works in six to eight hours of time. This allows for use during bedtime. In preferred embodiments, adhesive tape or a bandage is used to secure the toxin absorbing patch onto the skin.

Figures 1A and 1B illustrate an exemplary toxin-absorbing patch 100, in accordance with an embodiment of the present invention. Figure 1A shows the front of patch 100, and Figure 1B shows the back of patch 100. The front section of patch 100 is made from thin-layered titanium foil 103, and the rear section of patch 100 is made from non-woven rayon 105. Foil 103 provides a very smooth, shiny and reflective surface, which can reflect heat. Adhesive tape is applied to foil 103 on the front section of patch 100 for application. Rayon 105 on the rear section of patch 100 is applied directly onto the skin during use. Rayon 105 comprises openings 107 that offer enhanced far infrared ray emission into the skin. Patch 100 preferably has a width of 60 mm and a length of 80 to 90 mm; however, patches in alternate embodiments may be various shapes and sizes. Patch 100 has large surface area so that it can cover a large section of the body. The weight of patch 100 is preferably five grams with an error level of 0.2 grams; however, patches in alternate embodiments may weigh more or less.

In other exemplary embodiments, the front section of patch 100 may be made from non-woven rayon, and the rear section of patch 100 may also be made from nonwoven rayon. In yet other exemplary embodiments, the front section of patch 100 may be made from thin-layered titanium foil, and the rear section of patch 100 may

also be made from thin layered titanium foil. The titanium foil is, in this exemplary embodiment, fused with carbon, i. e. carbon particles are provided on the surface of the titanium foil. In yet other exemplary embodiments, the front and rear sections of patch 100 may be made from any suitable materials that enable patch 100 to function as described herein.

In the exemplary embodiment, powdered natural ingredients are sealed inside patch 100 between foil 103 and rayon 105. Patch 100 includes a sachet between foil 103 and rayon 105 that has a bag opening into which the natural ingredients such as, but not limited to, vinegar, chitosan, loquat leaf, houttuynia cordata, vitamin C, tourmaline, vegetable fiber, and dextrin may be inserted. In the present embodiment, the bag section of the sachet is large and can be made to contain five to eight grams of ingredients. This mixture of natural ingredients is formulated to emit heat, or far infrared rays. Table 1 lists an exemplary formula for the natural ingredients in a toxin-absorbing patch, according to an embodiment of the present invention. Those skilled in the art, in light of the present teachings, will readily recognize that various other types of ingredients and amounts of ingredients may be used in alternate embodiments.

In typical use of the present embodiment, patch 100 is applied externally on the surface of the skin. Patch 100 is attached to a bandage or adhesive tape before application to the skin. A user applies patch 100 to the skin by joining patch 100 to the bandage or adhesive tape with the edges of the bandage or adhesive tape extending beyond the edges of patch 100 and then attaching patch 100 with the adhesive tape or bandage to any location on the body that requires far infrared rays. Typically, the user applies patch 100 onto the bottom of a foot for six to eight hours. This allows for use during bedtime. During use, the foot produces sweat due to the heat coming from patch 100, and the sweat may include toxins such as, but not limited to, heavy metals, which are absorbed into patch 100. Therefore, a user that is suffering from heavy metal toxicity, for example, without limitation, a person with Autism, may benefit from the use of patch 100 because of the heavy metal reduction capability. The warmth from the far infrared rays also may help to improve blood circulation, and people suffering from blocked blood circulation may benefit from using patch 100. In the present embodiment, patch 100 fits virtually any part of the body, is easy to use, and generally eliminates the need for electrical devices and

interference. Patch 100 is made of non-allergic material, and may therefore be used by people who have allergies.

Testing has shown that patches according to embodiments of the present invention may be used to emit heat when comprising a correct mixture of natural ingredients. Previously, only devices using electrical currents could be used to generate far infrared emission. Furthermore, an analysis of a new toxin-absorbing patch and a used toxin-absorbing patch was performed by Japan Food Research Laboratories on December 2, 2005. The analysis tested for various heavy metals in the two patches including arsenic, lead, cadmium, mercury, tin, cobalt, and chromium. In the analysis only 0.01 parts per million (ppm) of cadmium was detected and none of the other metals were detected in the new patch while 0.55 ppm of lead, 0.03 ppm of cadmium, 0.09 ppm of cobalt, and 1.7 ppm of chromium were detected in the used patch. This analysis provides evidence that embodiments of the present invention may be used for the absorption of heavy metal from the body into the patch.

Additional exemplary embodiments of the patch 100 described herein may include formulations having a variety of ingredients in diverse combinations. The ingredients for the formulations may be selected from the non-limiting list of: loquat leaf (*Eriobotrya japonica*); dokudami (*Houttuynia cordata*); peppermint (*Mentha piperita*); dandelion (*Taraxacum officinale*); blackhaw (*Viburnum prunifolium*); fennel (*Foeniculum vulgare*); licorice (*Glycyrrhiza glabra*); agaricus; grapefruit (*Citrus × paradisi*); raspberry (*Rubus*); lavender (*Lavandula*); milk thistle (*Silybum marianum*); cinnamon (*Cinnamomum*); japanese ginseng (*Panax japonicus*); japanese seaweed (kaise); konjac (*Amorphophallus konjac*); aloe vera; ginger (*Zingiber officinale*); arnica, which may be an arnica species not containing helenalin; winter cherry (ashwagandha or *Withania somnifera*); holy basil (tulsi or *Ocimum tenuiflorum*); wasabi (*Wasabia japonica*); eucalyptus; Vitamin C; wood vinegar; bamboo vinegar; vegetable fiber; glycyrrhizic acid, beta-glucans; sporopollenin; glucomannan; anethole, mushroom chitosan; chitosan; pectin, anthocyanins; zingerone; shogaol; gingerol; dextrin; capsaicin; betaelemene; glutathione; Epigallocatechin gallate (EGCG) and L-Theanine; nattokinase; tourmaline; amethyst; diatomaceous earth; and zeolite.

In some exemplary embodiments of the formulations, certain active ingredients listed above may be extracted from a particular plant or naturally-occurring substance

containing the active ingredient. For example, sporopollenin may be extracted from *Chlorella vulgaris*; capsaicin may be extracted from capsicum peppers; anthocyanins may be extracted from *Vaccinium* berries, *Rubus* berries, or the like; EGCG and L-Theanine may be extracted from green tea; dextrin may be extracted from cornstarch; glycyrrhizic acid may be extracted from licorice; beta-glucans may be extracted from agaricus; pectin may be extracted from grapefruit, citrus fruits, or any other suitable plant; anethole may be extracted from fennel; glucomannan may be extracted from konjac; zingerone, shogaol, and gingerol may be extracted from ginger; beta-elemene and glutathione may be extracted from holy basil or any other suitable plant, and so forth. However, such active ingredients may be extracted from any suitable plant species containing the ingredient and included in the formulation.

It should be appreciated that some exemplary embodiments of the formulations may include the above-described active ingredients as extracted from the plant matter containing the active ingredient. In other exemplary embodiments of the formulations, the active ingredients may be included in the formulations as part of the plant matter containing the active ingredients. It should further be appreciated that the amount of active ingredient in a particular plant may be an amount less than the total composition of the particular plant. For example, glycyrrhizic acid may be about 64% of licorice, by weight; beta-glucans may be about 99% of agaricus by weight; pectin may be about 33% of grapefruit by weight; EGCG may be about 80% of green tea by weight; L-theanine may be about 19% of green tea by weight; and glucomannan may be about 99% of konjac-mannan by weight. Therefore, where the below listed formulations recite a particular plant, the formulations should also be understood as encompassing any formulation containing any active ingredient of the plant, with the percentage by weight of the active ingredient in the formulation being substantially similar to the percentage by weight of the plant multiplied by the percentage by weight of the active ingredient contained in the plant. The formulations listed below should also be understood as equivalent to formulations including any substance, such as plant matter or the like, that includes the particular active ingredient.

Various embodiments of formulations for patch 100 may include the above-described ingredients in varying proportions. As shown in Table 1, a particular formulation may contain between 0% to 100%, by weight, of each of the above-described ingredients. It should be appreciated that the percentage by weight of each ingredient of the formulation may be adjusted as desired within the given weight-percent range.

Ingredient	Wt. %
Wood Vinegar	0%-100%
Bamboo Vinegar	0%-100%
Chitosan	0%-100%
Loquat Leaf	0%-100%
Houttuynia cordata	0%-100%
Vitamin C	0%-100%
Tourmaline	0%-100%
Dextrin	0%-100%
Vegetable fiber	0%-100%
Sporopollenin	0%-100%
Mushroom Chitosan	0%-100%
Peppermint	0%-100%
Dandelion	0%-100%
Blackhaw	0%-100%
Fennel	0%-100%
Licorice	0%-100%
Capsaicin	0%-100%
Agaricus	0%-100%
Grapefruit/citrus	0%-100%
Vaccinum/Rubus berries	0%-100%
Lavender	0%-100%
Milk Thistle	0%-100%
Green tea	0%-100%
Cinnamon	0%-100%
Wasabi	0%-100%
Japanese ginseng	0%-100%
Japanese seaweed	0%-100%
Glucomannan	0%-100%
Aloe Vera	0%-100%
Ginger	0%-100%
Arnica	0%-100%
Nattokinase	0%-100%
Winter cherry	0%-100%
Holy basil	0%-100%
Eucalyptus	0%-100%
Amethyst	0%-100%
Diatomaceous earth	0%-100%
Zeolite	0%-100%

Table 1

Exemplary embodiments of patch 100 may have total weights in the range between about 3 grams and about 50 grams. The embodiments of patch 100 may be provided within this range, for example, in 1 gram increments. Therefore, exemplary embodiments of patch 100 may include patches having a weight of 3 g, 4 g, 5 g, ... , 48 g, 49 g, 50g, inclusive of all intermediate sizes.

Additionally, patch 100 may be provided in any desired shape or size. Exemplary embodiments of patch 100 may have a length in the range between about 100 mm to about 2000 mm, and a width in the range between about 100 mm to about 2000 mm.

Any sizes of patch 100 within these ranges may be provided, as a non-limiting example, 600 mm × 800 mm, 600 mm × 900 mm, 600 mm × 1000 mm, 600 mm × 1100 mm, 500 mm × 800 mm, and so forth. Patch 100 may be shaped as a circle, triangle, quadrilateral, or any other desired shape. In some exemplary embodiments, patch 100 may have a radius between about 100 mm to about 2000 mm. Therefore, any radii for patch 100 within these ranges may be provided, for example a radius of 100 mm, 200 mm, 300 mm, ... , 1800 mm, 1900 mm, 2000 mm, inclusive of all intermediate sizes.

Tables 2-38 illustrate additional exemplary embodiments of formulations for patch 100. The ingredient proportions in the listed formulations should be considered exemplary and not limiting. It should also be appreciated that, for each composition, the percentage by weight of each ingredient may vary by approximately 50% of the indicated percentage by weight value for that ingredient. The formulations listed herein, as well as the percentage by weight values of the ingredients therein, may be applicable to embodiments of patch 100 having any desired weight or shape.

Ingredient	Wt. %
Wood Vinegar	12.00%±6.00%
Bamboo Vinegar	12.00%±6.00%
Chitosan	0.80%±0.40%
Loquat Leaf	0.80%±0.40%
Houttuynia cordata	0.80%±0.40%
Vitamin C	0.80%±0.40%
Tourmaline	60.00%±30.00%
Vegetable Fiber	4.00%±2.00%
Dextrin	8.80%±4.40%

Table 2

Ingredient	Wt. %
Wood Vinegar	26.00%±13.00%
Bamboo Vinegar	15.00%±7.50%
Chitosan	1.00%±0.50%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	5.00%±2.50%
Vitamin C	2.00%±1.00%
Tourmaline	30.00%±15.00%
Dextrin	20.00%±10.00%

Table 3

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	15.00%±7.50%
Chitosan	1.00%±0.50%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	1.00%±0.50%
Vitamin C	1.00%±0.50%
Tourmaline	50.00%±25.00%
Dextrin	11.00%±5.50%
Vegetable fiber	5.00%±2.50%

Table 4

Ingredient	Wt. %
Wood Vinegar	11.76%±5.88%
Bamboo Vinegar	7.06±3.53%%
Loquat Leaf	0.47%±0.235%
Houttuynia cordata	0.47%±0.235%
Vitamin C	0.47%±0.235%
Tourmaline	70.59%±35.295%
Dextrin	1.18%±0.59%
Vegetable fiber	2.35%±1.175%
Sporopollenin	5.18%±0.259%
Mushroom Chitosan	0.47%±0.235%

Table 5

Ingredient	Wt. %
Wood Vinegar	20.00%±10.00%
Tourmaline	40.00%±20.00%
Dextrin	4.00%±2.00%
Vegetable fiber	4.00%±2.00%
Peppermint	16.00%±8.00%
Dandelion	4.00%±2.00%
Blackhaw	4.00%±2.00%
Fennel	4.00%±2.00%
Licorice	4.00%±2.00%

Table 6

Ingredient	Wt. %
Wood Vinegar	20.00%±10.00%
Tourmaline	50.00%±25.00%
Dextrin	2.00%±1.00%
Peppermint	20.00%±10.00%
Dandelion	2.00%±1.00%
Blackhaw	2.00%±1.00%
Fennel	2.00%±1.00%
Licorice	2.00%±1.00%

Table 7

5

Ingredient	Wt. %
Wood Vinegar	25.00%±12.50%
Bamboo Vinegar	25.00%±12.50%
Chitosan	0.50%±0.25%
Loquat Leaf	5.00%±2.50%
Houttuynia cordata	5.00%±2.50%
Vitamin C	2.00%±1.00%
Tourmaline	18.75%±9.375%
Dextrin	12.50%±6.25%
Amethyst	6.25%±3.125%

Table 8

Ingredient	Wt. %
Wood Vinegar	23.75%±11.875%
Bamboo Vinegar	56.25%±28.125%
Chitosan	1.00%±0.50%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	2.00%±1.00%
Vitamin C	1.00%±0.50%
Dextrin	15.00%±7.50%

Table 9

Ingredient	Wt. %
Wood Vinegar	25.00%±12.50%
Bamboo Vinegar	56.25%±28.125%
Chitosan	1.00%±0.50%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	2.00%±1.00%
Vitamin C	1.00%±0.50%
Dextrin	13.75%±6.875%

Table 10

5

Ingredient	Wt. %
Wood Vinegar	15.00%±12.50%
Bamboo Vinegar	15.00%±12.50%
Chitosan	1.00%±0.50%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	1.50%±0.75%
Vitamin C	1.00%±0.50%
Capsaicin	2.50%±1.25%
Vegetable Fiber	20.00%±10.00%
Dextrin	43.00%±21.50%

Table 11

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	25.00%±12.50%
Chitosan	1.00%±0.50%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	1.50%±0.75%
Vitamin C	1.00%±0.50%
Capsaicin	5.00%±2.50%
Vegetable Fiber	20.00%±10.00%
Dextrin	30.50%±15.25%

Table 12

Ingredient	Wt. %
Wood Vinegar	16.00%±8.00%
Bamboo Vinegar	20.00%±10.00%
Chitosan	0.04%±0.02%
Loquat Leaf	0.04%±0.02%
Houttuynia cordata	0.06%±0.03%
Vitamin C	0.80%±0.40%
Capsaicin	1.00%±0.50%
Vegetable Fiber	16.00%±8.00%
Dextrin	24.40%±12.20%

Table 13

5

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	15.00%±7.50%
Tourmaline	5.00%±2.50%
Agaricus	5.00%±2.50%
Dextrin	60.00%±30.00%

Table 14

Ingredient	Wt. %
Wood Vinegar	12.00%±6.00%
Bamboo Vinegar	12.00%±6.00%
Tourmaline	20.00%±10.00%
Agaricus	8.00%±4.00%
Dextrin	48.00%±24.00%

Table 15

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	15.00%±7.50%
Vitamin C	1.00%±0.50%
Vegetable Fiber	20.00%±10.00%
Dextrin	49.00%±24.50%

Table 16

Ingredient	Wt. %
Wood Vinegar	16.00%±8.00%
Bamboo Vinegar	16.00%±8.00%
Vitamin C	4.80%±2.40%
Vegetable Fiber	20.00%±10.00%
Dextrin	43.20%±21.60%

Table 17

5

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	56.25%±28.125%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	2.00%±1.00%
Grapefruit/citrus	2.00%±1.00%
Dextrin	23.75%±11.875%

Table 18

Ingredient	Wt. %
Wood Vinegar	16.00%±8.00%
Bamboo Vinegar	45.00%±22.50%
Loquat Leaf	2.00%±1.00%
Houttuynia cordata	2.00%±1.00%
Grapefruit/citrus	16.00%±8.00%
Dextrin	19.00%±9.50%

Table 19

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	56.25%±28.125%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	2.00%±1.00%
Vaccinum/Rubus berries	2.00%±1.00%
Dextrin	23.75%±11.275%

Table 20

Ingredient	Wt. %
Wood Vinegar	16.00%±8.00%
Bamboo Vinegar	45.00%±22.50%
Loquat Leaf	2.00%±1.00%
Houttuynia cordata	2.00%±1.00%
Vaccinum/Rubus berries	16.00%±8.00%
Dextrin	19.00%±9.50%

Table 21

5

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	56.25%±28.125%
Loquat Leaf	1.00%±0.50%
Houttuynia cordata	2.00%±1.00%
Lavender	2.00%±1.00%
Dextrin	23.75%±11.275%

Table 22

Ingredient	Wt. %
Wood Vinegar	16.00%±8.00%
Bamboo Vinegar	45.00%±22.50%
Loquat Leaf	0.80%±0.40%
Houttuynia cordata	1.60%±0.80%
Tourmaline	5.60%±2.80%
Lavender	20.00%±10.00%
Dextrin	11.00%±5.50%

Table 23

Ingredient	Wt. %
Wood Vinegar	25.00%±12.50%
Bamboo Vinegar	25.00%±12.50%
Loquat Leaf	1.50%±0.75%
Houttuynia cordata	1.00%±0.50%
Tourmaline	12.50%±6.25%
Grapefruit/citrus	25.00%±12.50%
Dextrin	10.00%±5.00%

Table 24

Ingredient	Wt. %
Wood Vinegar	20.00%±10.00%
Bamboo Vinegar	20.00%±10.00%
Loquat Leaf	1.20%±0.60%
Houttuynia cordata	0.80%±0.40%
Tourmaline	20.00%±10.00%
Grapefruit/citrus	30.00%±15.00%
Dextrin	8.00%±4.00%

Table 25

5

Ingredient	Wt. %
Wood Vinegar	25.00%±12.50%
Bamboo Vinegar	12.50%±6.25%
Loquat Leaf	5.00%±2.50%
Houttuynia cordata	5.00%±2.50%
Tourmaline	12.50%±6.25%
Vegetable Fiber	5.00%±2.50%
Capsaicin	5.00%±2.50%
Milk thistle	10.00%±5.00%
Dextrin	20.00%±10.00%

Table 26

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	15.00%±7.50%
Loquat Leaf	0.50%±0.25%
Houttuynia cordata	0.50%±0.25%
Vitamin C	0.50%±0.25%
Tourmaline	12.50%±6.25%
Vegetable Fiber	1.00%±0.50%
Green tea	50.00%±25.00%
Dextrin	5.00%±2.50%

Table 27

Ingredient	Wt. %
Wood Vinegar	12.00%±6.00%
Bamboo Vinegar	12.00%±6.00%
Loquat Leaf	0.40%±0.20%
Houttuynia cordata	0.40%±0.20%
Vitamin C	0.40%±0.20%
Tourmaline	20.00%±10.00%
Vegetable Fiber	0.80%±0.40%
Green tea	50.00%±25.00%
Dextrin	4.00%±2.00%

Table 28

5

Ingredient	Wt. %
Wood Vinegar	15.00%±7.50%
Bamboo Vinegar	15.00%±7.50%
Chitosan	0.50%±0.25%
Loquat Leaf	0.50%±0.25%
Houttuynia cordata	0.50%±0.25%
Tourmaline	37.50%±18.75%
Vegetable Fiber	0.50%±0.25%
Cinnamon	10.00%±5.00%
Japanese ginseng	5.00%±2.50%
Japanese seaweed	5.00%±2.50%
Glucomannan	5.00%±2.50%
Dextrin	5.50%±2.50%

Table 29

Ingredient	Wt. %
Wood Vinegar	12.00%±6.00%
Bamboo Vinegar	12.00%±6.00%
Chitosan	0.40%±0.20%
Loquat Leaf	0.40%±0.20%
Houttuynia cordata	0.40%±0.20%
Tourmaline	50.00%±25.00%
Vegetable Fiber	0.40%±0.20%
Cinnamon	8.00%±4.00%
Japanese ginseng	4.00%±2.00%
Japanese seaweed	4.00%±2.00%
Glucomannan	4.00%±2.00%
Dextrin	4.40%±2.00%

Table 30

Ingredient	Wt. %
Wood Vinegar	12.00%±6.00%
Bamboo Vinegar	8.00%±4.00%
Houttuynia cordata	4.00%±2.00%
Vitamin C	0.80%±0.40%
Tourmaline	20.00%±10.00%
Vegetable Fiber	2.00%±1.00%
Diatomaceous earth	20.00%±10.00%
Aloe Vera	2.04%±1.02%
Ginger	1.98%±0.99%
Arnica	1.98%±0.99%
Zeolite	20.00%±10.00%
Dextrin	7.20%±3.60%

Table 31

Ingredient	Wt. %
Wood Vinegar	11.76%±5.88%
Bamboo Vinegar	11.76%±5.88%
Loquat Leaf	0.47%±0.235%
Houttuynia cordata	0.47%±0.235%
Vitamin C	0.94%±0.47%
Tourmaline	35.29%±17.645%
Vegetable Fiber	2.35%±1.175%
Mushroom chitosan	0.47%±0.235%
Nattokinase	11.76%±5.88%
Winter cherry	11.76%±5.88%
Holy basil	11.76%±5.88%
Dextrin	1.18%±0.59%

Table 32

Ingredient	Wt. %
Wood Vinegar	8.00%±4.00%
Bamboo Vinegar	12.00%±6.00%
Chitosan	16.00%±8.00%
Tourmaline	30.00%±15.00%
Agaricus	4.00%±2.00%
Eucalyptus	10.00%±5.00%
Dextrin	20.00%±10.00%

Table 33

5

Ingredient	Wt. %
Wood Vinegar	7.06%±3.53%
Bamboo Vinegar	7.06%±3.53%
Loquat Leaf	0.24%±0.12%
Houttuynia cordata	0.24%±0.12%
Tourmaline	70.59%±35.295%
Sporopollenin	2.94%±1.47%
Amethyst	2.94%±1.47%
Agaricus	2.94%±1.47%
Zeolite	2.94%±1.47%
Dextrin	0.26%±0.13%

Table 34

Ingredient	Wt. %
Wood Vinegar	11.76%±5.88%
Bamboo Vinegar	7.06%±3.53%
Loquat Leaf	0.24%±0.12%
Houttuynia cordata	0.24%±0.12%
Vitamin C	0.24%±0.12%
Tourmaline	70.59%±35.295%
Vegetable fiber	1.18±0.59%
Sporopollenin	7.06%±3.53%
Mushroom chitosan	0.47%±0.235%
Dextrin	0.18%±0.09%

Table 35

Ingredient	Wt. %
Wood Vinegar	10.00%±5.00%
Bamboo Vinegar	6.00%±3.00%
Loquat Leaf	0.20%±0.10%
Houttuynia cordata	0.20%±0.10%
Vitamin C	0.20%±0.10%
Tourmaline	70.00%±35.00%
Vegetable fiber	2.00±1.00%
Sporopollenin	10.00%±5.00%
Mushroom chitosan	0.40%±0.20%
Dextrin	1.00%±0.50%

Table 36

Ingredient	Wt. %
Wood Vinegar	9.09%±4.545%
Bamboo Vinegar	5.45%±2.725%
Loquat Leaf	0.18%±0.09%
Houttuynia cordata	0.18%±0.09%
Vitamin C	0.18%±0.09%
Tourmaline	72.73%±36.365%
Vegetable fiber	1.82±0.91%
Sporopollenin	9.09%±4.545%
Mushroom chitosan	0.36%±0.18%
Dextrin	0.91%±0.455%

Table 37

Ingredient	Wt. %
Wood Vinegar	20.00%±10.00%
Bamboo Vinegar	45.00%±22.50%
Chitosan	0.80%±0.40
Loquat Leaf	0.80%±0.40%
Houttuynia cordata	1.60%±0.80%
Wasabi	20.00%±10.00%
Vegetable fiber	2.00±1.00%
Dextrin	11.00%±5.50%

Table 38

Having fully described at least one embodiment of the present invention, other equivalent or alternative methods of providing toxin absorption and improving blood circulation using far infrared rays according to the present invention will be apparent to those skilled in the art. The invention has been described above by way of illustration, and the specific embodiments disclosed are not intended to limit the invention to the particular forms disclosed. For example, the particular implementation of the patch may vary depending upon the intended location of application. The patches described in the foregoing were directed to implementations typically applied to the bottom of the foot; however, similar techniques are to provide patches that are shaped to specifically fit on various parts of the body. For example, without limitation, large sheets may be used on the back or the back of the legs, curved patches may be used on the underarms, and small, round patches may be used on the hands. Implementations of the present invention that are applied to various areas of the body are contemplated as within the scope of the present invention. The invention is thus to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the following claims.

The foregoing description and accompanying figures illustrate the principles, preferred embodiments and modes of operation of the invention. However, the invention should not be construed as being limited to the particular embodiments discussed above. Additional variations of the embodiments discussed above will be appreciated by those skilled in the art.

Therefore, the above-described embodiments should be regarded as illustrative rather than restrictive. Accordingly, it should be appreciated that variations to those embodiments can be made by those skilled in the art without departing from the

scope of the invention as defined by the following claims and can particularly in line with the following aspects:

1. A skin patch for absorbing toxins from a body, comprising:

5 a first side;

a second side comprising a surface configured for absorbing and retaining the toxins, the surface comprising a plurality of openings configured for enhancing transmission of far infrared ray emission into a skin when the second side is placed in contact with the skin; and

10 a mixture of natural ingredients, the mixture comprising wood vinegar, dextrin, and at least one additional ingredient selected from the group consisting of: bamboo vinegar, chitosan, loquat leaf, houttuynia cordata, vitamin C, tourmaline, vegetable fiber, sporopollenin, mushroom chitosan, peppermint, dandelion, blackhaw, fennel, licorice, capsaicin, agaricus, grapefruit, citrus, vaccinium berries,
15 rubus berries, lavender, milk thistle, green tea, cinnamon, wasabi, Japanese ginseng, Japanese seaweed, glucomannan, aloe vera, ginger, arnica, nattokinase, winter cherry, holy basil, eucalyptus, amethyst, diatomaceous earth, and zeolite.

2. The skin patch of aspect 1, wherein the first side is formed from one of a
20 heatreflective foil or a non-woven rayon surface.

3. The skin patch of aspect 1, wherein the second side is formed from one of a heatreflective foil or a non-woven rayon surface.

25 4. The skin patch of aspect 1, wherein the natural ingredients are sealed between the first side and the second side.

5. The skin patch of aspect 1, wherein the skin patch is operable to be joined to the skin with an adhesive.

30 6. The skin patch of aspect 1, wherein the skin patch is operable to be joined to the skin of a bottom of a foot.

7. A skin patch for absorbing toxins from a body, comprising:

35 a first side;

a second side comprising a surface configured for absorbing and retaining the toxins, the surface comprising a plurality of openings configured for enhancing transmission of far infrared ray emission into a skin when the second side is placed in contact with the skin; and

5 a mixture of natural ingredients, the mixture comprising wood vinegar, dextrin, and at least one additional ingredient selected from the group consisting of: bamboo vinegar, chitosan, loquat leaf, houttuynia cordata, vitamin C, tourmaline, vegetable fiber, sporopollenin, mushroom chitosan, peppermint, dandelion, blackhaw, anethole, glycyrrhizic acid, capsaicin, beta-glucans, pectin, anthocyanins, lavender, milk thistle, 10 EGCG and Ltheanine, cinnamon, wasabi, Japanese ginseng, Japanese seaweed, glucomannan, aloe vera, zingerone, shogaol, gingerol, arnica, nattokinase, winter cherry, beta-elemene, glutathione, eucalyptus, amethyst, diatomaceous earth, and zeolite.

15 8. The skin patch of aspect 7, wherein the first side is formed from one of a heatreflective foil or a non-woven rayon surface.

9. The skin patch of aspect 7, wherein the second side is formed from one of a heatreflective foil or a non-woven rayon surface.

20

10. The skin patch of aspect 7, wherein the natural ingredients are sealed between the first side and the second side.

11. The skin patch of aspect 7, wherein the skin patch is operable to be joined to the 25 skin with an adhesive.

12. The skin patch of aspect 7, wherein the skin patch is operable to be joined to the skin of a bottom of a foot.

30 13. A skin patch for absorbing toxins from a body, comprising:
means for reflecting heat from far infrared ray emissions;
means for absorbing and retaining the toxins;
means for enhancing transmission of far infrared ray emissions into a skin;
and

means for emitting said far infrared ray emissions, whereby blood circulation is promoted and perspiration and any toxins contained therein are absorbed by said absorbing means;

5 wherein the skin patch contains a mixture of natural ingredients, the mixture comprising wood vinegar, dextrin, and at least one additional ingredient selected from the group consisting of:

10 bamboo vinegar, chitosan, loquat leaf, houttuynia cordata, vitamin C, tourmaline, vegetable fiber, sporopollenin, mushroom chitosan, peppermint, dandelion, blackhaw, fennel, licorice, capsaicin, agaricus, grapefruit, citrus, vaccinium berries, rubus berries, lavender, milk thistle, green tea, cinnamon, wasabi, Japanese ginseng, Japanese seaweed, glucomannan, aloe vera, ginger, arnica, nattokinase, winter cherry, holy basil, eucalyptus, amethyst, diatomaceous earth, and zeolite.

14. The skin patch of aspect 13, further comprising means for joining the skin patch
15 to the skin.

CLAIMS

1. A skin patch for absorbing toxins from a body, comprising:

a first side;

a second side comprising a surface adapted for absorbing and retaining the toxins, the surface comprising a plurality of openings adapted for enhancing transmission of far infrared ray emission into a skin when the second side is placed in contact with the skin; and

a granular mixture of natural ingredients, the mixture comprising wood vinegar, dextrin, and at least one additional ingredient selected from the group consisting of:

bamboo vinegar, chitosan, loquat leaf, houttuynia cordata, vitamin C, tourmaline, vegetable fiber, sporopollenin, mushroom chitosan, peppermint, dandelion, blackhaw, fennel, licorice, anethole, glycyrrhizic acid, capsaicin, beta-glucans, pectin, anthocyanins, agaricus, grapefruit, citrus, vaccinium berries, rubus berries, lavender, milk thistle, green tea, epigallocatechin gallate and L-theanine, cinnamon, wasabi, Japanese ginseng, Japanese seaweed, glucomannan, aloe vera, zingerone, shogaol, ginger, gingerol, arnica, nattokinase, winter cherry, beta-elemene, glutathione, holy basil, eucalyptus, amethyst, diatomaceous earth, and zeolite.

2. The skin patch of claim 1, wherein the first side comprises a heat-reflective foil and/or a non-woven rayon surface which optionally is covered by a heat-reflective foil.

3. The skin patch of claim 1 or claim 2, wherein the heat-reflective foil comprises a metallic foil comprising carbon particles in its foil structure and/or sprinkled on the foil surface.

4. The skin patch according to any of claims 1 to 3, wherein the foil comprises a magnetic material or a number of magnetic cores supported on a foil or compressed between two foils.

5. The skin patch of anyone of claims 1 to 4, wherein the natural ingredients are sealed between the first side and the second side.

6. The skin patch of anyone of claims 1 to 5, further comprising an adhesive on a part of the second side for joining the patch to the skin.

5 7. The skin patch of anyone of claims 1 to 6, further comprising means for joining the skin patch to the skin with the second side, wherein the means are provided at the first side.

10 8. The skin patch of anyone of claims 1 to 7, wherein the at least one additional natural ingredient is prepared from extracting a plant or naturally-occurring substance containing the ingredient with an extraction solvent and is contained in the patch in its solid form or as liquid extract being supported on a solid support structure.

15 9. The skin patch of anyone of claims 1 to 8, wherein at least a part of the natural ingredients are formed as granules having a porous surface.

10. The skin patch of claim 9, wherein the granules having a porous surface have a pore diameter equivalent of 5 to 25 nm.

20 11. The skin patch of claim 9 or 10, wherein the granules have a shape in the form of a capsule or a cigar with a diameter r and a length a .

12. The skin patch of anyone of claims 1 to 11, wherein the skin patch is adapted to be joined to the skin of a bottom of a foot.

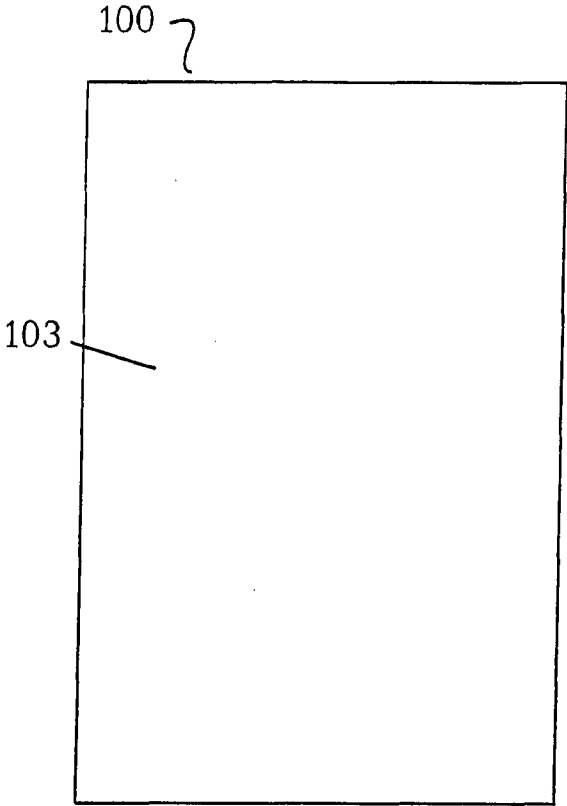


Figure 1A

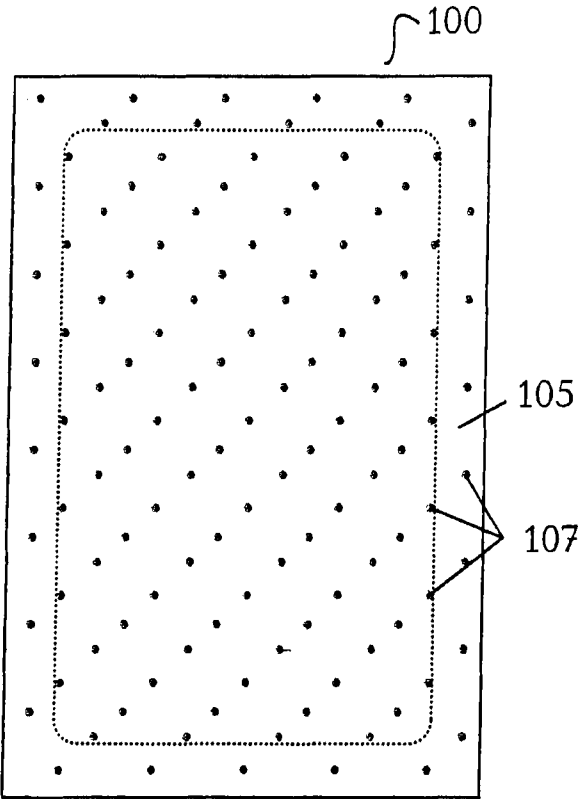


Figure 1B

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/002569

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K9/70
ADD.

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)
A61K

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)

EPO-Internal, WPI Data, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/121297 A1 (SALIM NURMAN [JP]) 13 May 2010 (2010-05-13) abstract; figures 1A, 1B paragraphs [0004], [0007] - [0014], [0019] - [0023]; claims 1-10; table 1 -----	1-12
X	US 2011/064787 A1 (CABADOS RICK HENRY [US]) 17 March 2011 (2011-03-17) abstract figures 1-5 paragraphs [0003], [0004], [0010] - [0021], [0023] - [0043]; claims 1-20; figures 1-5 -----	1-12
A	WO 02/100385 A1 (KIM KI HONG [KR]) 19 December 2002 (2002-12-19) the whole document ----- -/--	1-12



Further documents are listed in the continuation of Box C.



See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

5 June 2013

Date of mailing of the international search report

17/06/2013

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/002569

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2012/026829 A1 (RATO HEALTH LTD [NZ]; THERKLESON TESSA C [NZ]) 1 March 2012 (2012-03-01) the whole document -----	1-12

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/002569

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US 2011064787 A1	17-03-2011	NONE	
WO 02100385 A1	19-12-2002	CN 1390582 A JP 2002370973 A KR 20020021314 A US 2002197303 A1 WO 02100385 A1	15-01-2003 24-12-2002 20-03-2002 26-12-2002 19-12-2002
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