Description

This invention relates to substances and the use thereof for medicinal treatment.

It is known to extract the juice of cereal grasses and to drink this juice as a source of dietary nutrients. The juice can be freshly extracted, previously frozen, or reconstituted juice from dehydrated cereal grass extract. Dehydrated extract from cereal grass leaves has been pressed into tablets for direct consumption or incorporation into foods and beverages. However these extracts have not been effectively used for medicinal or cosmetic purposes.

In GB Patent Specification No. 1,358,052 in the name of Hagiwara there is described a process for producing a powder from cereal plants, the powder being for consumption as a nutrient, or for use in cosmetic or medicinal applications. The powder is produced by removing coarse solids and by freeze drying or lyophilising the juice. The Hagiwara product is likely to be contaminated with bacteria and therefore pharmaceutically unacceptible. Heating to destroy the bacteria is mentioned by Hagiwara but sterilization temperatures affect the structure and activity of complex molecules such as proteins.

It is an object of the present invention to provide a novel pharmaceutical use of pharmacologically effective substances.

According to the present invention there is provided the use of a composition for the manufacture of a medicament for external treatment of skin or mucous tissue infections, eruptions or lesions, said composition including an extract from plants of the green grass family, the extract including a juice which has been freshly derived from plants at the unjointed stage of plant development, the plants being selected from barley, wheat, oats, rice, rye and other cereal plants,

(a) the extraction being by a squeezing, crushing and/or grinding process,

(b) the extraction being carried out under sterile conditions and/or the extract being treated to prevent or inhibit growth, reproduction or activity of contaminating micro-organisms, and

(c) the extract being carried in a pharmaceutically acceptable base carrier or excipient, the carrier preserving the extract against deterioration and being capable of at least partial absorption by tissues so as to carry the extract to sub-surface tissues.

Extracts from barley, wheat and rye have been found to be effective. The wheat may comprise Triticum vulgare or aestivum, T. durum, or T. compactum. Corn, rice, oats, maize, sorghum and millet may also be effective.

Preferably the extract is derived from the green leafy part of the plant, or at least principally from this part of the plant, although additional green parts such as stalk may be included together with parts such as root, seed, sprouted seed. The leaves of the plant are preferably treated to yield the extract before the plant reaches flowering or seed production stage of development. That is, the plant is at its unjointed or immature development stage.

The extraction is preferably carried out by squeezing, crushing and/or grinding processes, not by a cutting process.

The plant extract may be concentrated before mixing with the carrier. Substantially all the liquid content of the plant extract may be removed. Other possible stabilisation processes for the juice include partial concentration of the derived juice to provide a concentrated liquid, and blending the derived juice with a preserving agent forming an ingredient of the carrier.

Preferably the stabilisation or mixing with the carrier or both is carried out within a short time and preferably within a matter of hours after extraction. Preferably this time is two hours.

The carrier for the extract may be any suitable material such as a cream, lotion, oil, gel or powder. For example the carrier may comprise a vanishing cream which is intended to be absorbed through the skin when externally applied so as to thereby carry the plant extract into sub-cutaneous tissue. A water based or aqueous carrier capable of carrying water soluble ingredients to sub-surface tissues is preferred.

It is believed that the following base creams and ointments may be suitable carriers although the fifth possible carrier may be susceptible to cracking due to incompatability between the extract according to the present invention and the carrier.

1) Chlorhexidine cream aqueous A.P.F. supplied by Sigma.
2) Aqueous cream B.P. supplied by Sigma.
3) Cetomacrogol cream (Sorbolene cream) aqueous A.P.F. 79 supplied by McGloin's.
4) Simple ointment (white) B.P. supplied by Sigma.
5) Cetrimide cream aqueous A.P.F. supplied by McGloin's.

Note:

A.P.F. = Australian Pharmacopoeia Formulae
B.P. = British Pharmacopoeia

Preferably the carrier includes an anti-microbial agent so as to kill or at least inhibit growth, reproduction or activity of contaminating organisms that may be present in the plant extract or may be introduced during production of the substance. Preferably the anti-microbial agent is an anti-bacterial agent. In addition or alternatively the agent may have anti-fungal and anti-yeast properties. The anti-microbial agent may be added to the substance during production or may be present in the carrier if the carrier for example is a standard commercially available blend. The anti-microbial agent is preferably active to inhibit any activity of organisms and thereby is operative to inhibit spoilage of the substance, e.g. spoilage of the product when being stored by the user or by a commercial outlet.

If the anti-microbial is not provided, it is preferred that the extract is substantially sterile when mixed with the carrier. The plants from which the extract is derived may be grown hydroponically for example under sterile conditions to prevent the introduction of micro-organisms at that stage. The subsequent harvesting and processing may also be carried out under sterile conditions.

It has been found that a suitable carrier is Cetomacrogol emulsion having a typical analysis (by weight):

wax	15%
paraffin liquid	10%
paraffin soft white	10%
Chlorocresol	0.1%
propylene glycol	5%
water	balance to 100

The Chlorocresol is an anti-bacterial agent which is effective as an anti-microbial agent as described above.

The Cetomacrogol emulsion is believed to be effective since the plant extract ingredients will be dissolved or suspended in the water component. The propylene glycol is a surface active agent enhancing emulsification. The fatty or oily ingredients enhance the texture for skin surface application. Sorbolene can be included as a stabilising agent.

The ratio of the extract to the carrier may be anywhere within a large range of possible ratios. For example the ratio of base carrier to plant extract (and other additives if provided) may be anywhere between 1 to 5 and 200 to 1 (by weight). A range of 1 to 30% by weight of extract is preferred. About 10% by weight of extract has been found effective.

In analysing and testing substances according to the present invention it has been found that several ingredients of the substance are identifiable may be active. The ingredient ascorbic acid may be present in the range of 0.01 - 10 mg (and preferably 0.1 to 1.0 mg) per gram of substance.

Other preferred ingredients include biotin in the range 0.005 - 0.5 mg (and preferably 0.01 to 0.2 mg) per gram and trypsin in the range 10 to 10,000 U (and preferably in the range 100 to 5,000 U) per gram.

A further possible ingredient is a colouring marker substance which, when the substance is applied externally, indicates the presence of the substance and while remaining visible indicates that the substance has been insufficiently worked into the skin. A suitable marker substance may be chlorophyll (e.g. in the range 0.05 - 5 mg per gram) which provides a green colouring to the substance but which substantially disappears when the substance is worked into the skin. Chlorophyll has been reported as possibly active in assisting wound or lesion healing.

A typical analysis of juice from the plant matter, is:

ascorbic acid	0.13 mg
beta-carotene	0.31 mg
biotin	0.048 mg
trypsin	1000 U
Chlorocresol	about 1 g
chlorophyll	1.4 mg
balance carrier substance with possible inclusion of other active ingredients.	

Preferably the substance has a generally neutral pH in the range 6.0 to 8.0. For example, the pH may be in the range 6.5 to 7.5. Analyses have shown a pH in the range 7 to 7.3.

The composition outlined above can be made up in Cetomacrogol cream. This substance has been found to be suitable for application externally to the skin and has been found effective in the treatment of cold sores.

The mechanism of the action of the substance has not been determined. The identified constituents of the cream are believed to be important in maintaining normal skin function or in aiding wound healing. Ascorbic acid (vitamin C) is required for collagen synthesis.

The uses of the substances according to the present invention include medicinal uses, pharmaceutical uses where pharmacological activity is desired.

The following examples give basic summaries of tests carried out.

Example 1

Sprouted wheat grass was treated to yield the juice which was prepared to provide unjointed, dehydrated wheat grass tablets, which were purchased commercially at a health food store. These tablets had been coated or mixed with non-animal tableting aids. The tablets were comminuted and mixed with Cetomacrogol cream (Sorbolene cream) aqueous A.P.F. 79 supplied by McGloin's. This preparation was externally applied to a cold sore which healed effectively in three days compared to the two or more weeks normal healing time for the person who was treated.

Example 2

Dried barley grass juice in powder form was mixed with a carrier or excipient and the preparation was applied to multiple surface eruptions. The treated eruptions receded while the untreated eruptions showed no substantial improvement in the same time period.

It has been found that the preferred substances can be effective in the surface or topical treatment of pimples and acne, minor burns including sunburn, eczema, cracked (fissured) skin, chafed nipples, thrush and vaginal itch, psoriasis, tinea, herpes 1, 2, and 3 (cold sores, genital herpes and herpes zoster or shingles), muscle rub, piles, anal itch, genital warts, contusions, bruises, gum or mouth lesions and ulcers and other surface lesions. Apart from direct physical application involving working the substance into the tissues, it is also believed that the substance can be used for preparations for use as a bathing additive or as a wash including as a mouth wash say for treatment of mouth ulcers or lesions.

It has furthermore been found that the substances may be effective in inhibiting colds and influenza when applied to the nasal mucosa externally, i.e. around the sinus area and the base of the nostrils. The application of the substance to these areas has been carried out daily in test subjects over a significant period. The substances are for external use only since internal application, e.g. to the nasal tissues, can cause discomfort and irritation. It is believed that the substances when externally applied are very slowly taken up by the tissues and in fact do reach the nasal mucous tissues but at very low rates due to the method of administration.

Although external application to reach nasal mucous tissues has been found preferred, the substances can however be directly applied to the vaginal and anal mucous tissues.

In the treating of colds, influenza or sinus infections, one can use external applications of substances according to the invention to the exterior surface of the user's nose and working the substances into the surface nasal tissues, and repeating the application of the substances at daily or more frequent intervals.

The wide range of possible fields of use of the substances are believed to indicate the possibility of effective activity being induced or augmented in the immune system. General supply to tissues of several ingredients, including organic and inorganic substances and electrolytes may be effectively supplementing or boosting body defence or immune mechanisms.

Claims

1. The use of a composition for the manufacture of a medicament for external treatment of skin or mucous tissue infections, eruptions or lesions, said composition including an extract from plants of the green grass family, the extract including a juice which has been freshly derived from plants at the unjointed stage of plant development, the plants being selected from barley, wheat, oats, rice, rye and other cereal plants,

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2. The use as claimed in Claim 1, wherein the juice is stabilised within two hours of derivation from the plants, the stabilisation consisting of a process selected from:
   (i) the process of concentrating the juice to provide a concentrated liquid, and
   (ii) the process of blending the juice with a preserving agent.

3. The use as claimed in Claim 1 or 2, wherein the carrier is a water based carrier capable of carrying water soluble components to sub-surface tissues when applied to a user's skin.

4. The use as claimed in Claim 2, wherein the composition has pH in the range of 6.0 to 8.0.

5. The use as claimed in Claim 1, wherein an anti-microbial agent is present in the pharmaceutically acceptable base carrier or excipient.

Patentansprüche

1. Verwendung einer Zusammensetzung für die Herstellung eines Medikamentes für die äussere Behandlung von Infektionen, Eruptionen und Läsionen von Haut- oder Schleimhautgewebe, wobei die Zusammensetzung einen Extrakt der Pflanzen der Familie der Gräser enthält, der Extrakt einen Saft enthält, welcher frisch aus Pflanzen in einem unreifen Entwicklungsstadium der Pflanze gewonnen worden ist, wobei die Pflanzen ausgewählt werden aus Gerste, Weizen, Hafer, Reis, Roggen oder anderen Getreidepflanzen,
   (a) wobei die Extraktion durch Quetsch-, Brech- und/oder ein Mahlverfahren durchgeführt wird,
   (b) die Extraktion unter sterilen Bedingungen durchgeführt wird und/oder der Extrakt behandelt wird, um das Wachsen, die Reproduktion oder die Aktivität von verunreinigenden Mikroorganismen zu vermeiden oder zu verhindern, und
   (c) der Extrakt in einem pharmazeutisch annehmbaren Grundträger oder Hülle getragen wird, wobei der Träger den Extrakt gegen Zerstörung schützt und wenigstens zum Teil von den Geweben aufgenommen werden kann, um so den Extrakt in die Gewebe unter der Oberfläche zu bringen.

2. Verwendung nach Anspruch 1, bei welcher der Saft innerhalb von zwei Stunden nach der Gewinnung aus den Pflanzen stabilisiert wird, die Stabilisierung aus einem Verfahren besteht, welches ausgewählt wurde aus:
   (i) dem Verfahren des Konzentrierens des Saftes, um eine konzentrierte Flüssigkeit zu erhalten, und
   (ii) dem Verfahren des Mischens des Saftes mit einem Konservierungsmittel.

3. Verwendung nach Anspruch 1 oder 2, bei welcher der Träger ein Träger auf Wasserbasis ist, welcher die wasserlöslichen Komponenten zu den Geweben unter der Oberfläche bringen kann, wenn er auf die Haut eines Anwenders aufgebracht wird.

4. Verwendung nach Anspruch 2, bei welcher die Zusammensetzung einen pH-Wert im Bereich von 6,0 bis 8,0 hat.

5. Verwendung nach Anspruch 1, bei welcher ein Antimikrobenagens in dem pharmazeutisch annehmbaren Grundträger oder Hülle vorliegt.

Revendications

1. Utilisation d'une composition pour la fabrication des médicaments pour le traitement externe d'infections, éruptions ou lésions d'un tissus épidermique ou muqueux, ladite composition contenant un extrait de plantes de la famille des graminacés, ledit extrait contenant un jus qui vient d'être dérivé des plantes dans un état de développement non mûri de la plante, les plantes étant choisies parmi l'orge, le froment, l'avoine, le riz, le seigle et d'autres plantes de céréales,
   (a) l'extraction se faisant par un procédé d'écrasement, de broyage et/ou de concassage,
   (b) l'extraction étant réalisée sous conditions stériles et/ou l'extrait étant traité pour prévenir ou inhiber la croissance, la reproduction et l'activité de microorganismes contaminants, et
   (c) l'extrait étant contenu dans un support de base ou excipient pharmaceutiquement acceptable, le support préservant l'extrait contre la détérioration et pouvant être absorbé au moins partiellement par les tissus de sorte à transporter l'extrait vers des tissus sous la surface.

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2. Utilisation selon la revendication 1, dans laquelle le jus est stabilisé dans les deux heures qui suivent sa dérivation des plantes, la stabilisation consistant en un procédé choisi de:
   (i) un procédé de concentration du jus pour fournir un liquide concentré, et
   (ii) un procédé de mélange du jus avec un agent préservateur.

3. Utilisation selon la revendication 1 ou 2, dans laquelle le support est un support à base d'eau capable de transporter les composants solubles dans l'eau vers des tissus sous la surface quand il est appliqué à la peau d'un utilisateur.

4. Utilisation selon la revendication 2, dans laquelle la composition a une valeur pH dans la bande de 6,0 à 8,0.

5. Utilisation selon la revendication 1, dans laquelle un agent antimicrobe est présent dans le support de base ou excipient pharmaceutiquement acceptable.