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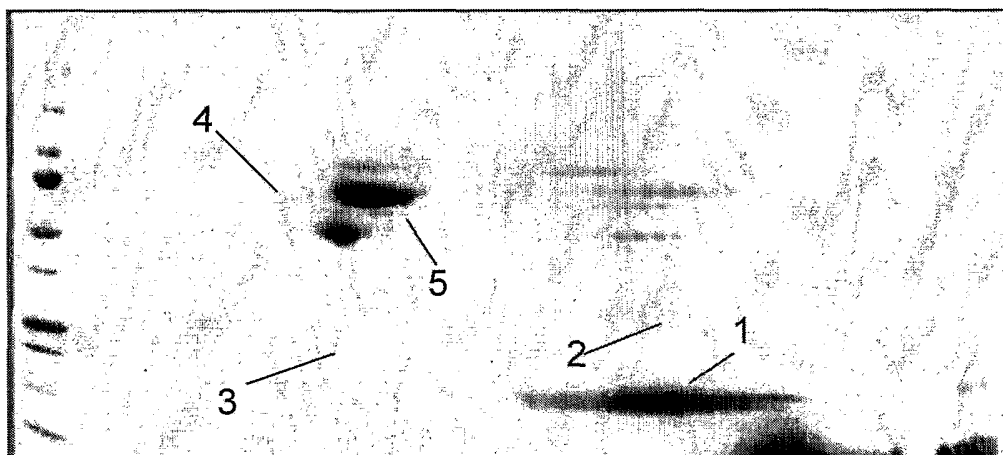
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BEE-FOOD, HONEY MADE BY BEES FED WITH IT, AND USES OF SUCH HONEY



(57) Abstract: A method for producing honey from bees comprising: (a) preparing bee food; (b) feeding the bee food to the bees; and (c) collecting the honey produced by the bees. The bee-food comprises bee food-base and blood. Also disclosed is a method for treating side effects of chemotherapy, the method comprising providing a subject undergoing chemotherapy with an effective amount of honey comprising blood components.

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**BEE-FOOD,
HONEY MADE BY BEES FED WITH IT,
AND USES OF SUCH HONEY**

FIELD OF THE INVENTION

This invention relates to a method for preparing food for bees, the food obtained thereby, honey produced by bees fed with such food, a method for preparing such honey and medicinal uses of such honey.

5 BACKGROUND OF THE INVENTION

Bee honey is the substance made and stored in the honeycombs of hives by honey bees. The composition of honey is influenced by the type of food collected by the bees. In general, bee food may be divided into two types:

- (a) Floral - nectar gathered from flowers;
- 10 (b) Non-floral – food gathered from sources other than flowers, such as extra-floral nectarines, honeydew and synthetic bee food sources.

Honey products are substances consisting in whole or in part of honey, but which do not meet the compositional criteria for honey.

Myelosuppression (bone marrow suppression) is the most serious toxic
15 effect of the majority of chemotherapeutic agents and typically is the dose-limiting factor. Death occurring after chemotherapy usually results either from infection related to drug-induced leucopenia or from bleeding related to thrombocytopenia. There is a need in the art for novel means to prevent or ameliorate such side effects of chemotherapy.

20 BE 1,005,748 describes production of honey compositions containing medicinal or herbal products by mixing of foreign substances with bees feed

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material, e.g. artificial nectar or honey, which can be easily and quickly taken-up in blood stream.

CN 1,067,779 describes a method to produce biofunctional honey by feeding bees with Chinese herbal medicines.

5 DE 4,439,732 describes biological composition of animal origin, used as feed additive for mammals, poultry and bees to improve health and productivity.

US 5,604,205 describes feed additive for animals, poultry and bees, containing free and bound amino acids and other nutrients, produced by hydrolysis of animal tissue or blood.

10 SUMMARY OF THE INVENTION

The first aspect of the invention is a method for preparing food for bees. The method comprises mixing bee food-base with blood, preferably together with one or more plant extracts, to obtain food for bees.

15 The blood is preferably of an avian or a mammal, such as hens, turkeys, cows, sheep and pigs.

The term **blood** as used herein denotes whole blood as well as processed blood. Processed blood typically includes blood which has been homogenized or lysed so as to break up cell membranes and release cellular constituents therefrom. Additional treatments of the blood (i.e. in addition to the breakup of
20 the cell) may be performed, including drying, freezing and thawing, filtrating etc., or any combination of same. Blood may be obtained from avian (e.g. bird, chicken, chick, turkey etc.) as well as from mammalian sources (e.g. cattle). Human blood, such as blood that passed its expiration date, obtainable from blood banks, may also be used.

25 The food-base useful according to the invention is any conventional bee food, such as a sugar solution, e.g. sucrose, glucose or fructose, natural or artificial pollen, and honey. Honey is preferable.

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Preferably, before mixing the blood with the food-base, the blood is frozen so as to lyse the blood cells, defrosted, and filtered from solid residues to obtain a blood filtrate, which is mixed with the food-base.

According to one embodiment of the invention the defrosting is carried out under vacuum, to obtain dry blood, which may be pulverized and introduced into the bee-food as powder.

In a preferred embodiment of the invention, plant extracts are included in the food for bees. Preferably, the extracts are plant blanches. Non-limiting examples of suitable plant blanches are those of *Echinacea*, *Uncaria*, *Eleutherococcus*, *Urtica*, *Calendula*, *Trifolium*, *Melissa*, *Morus*, *Ribes*, *Taraxacum*, *Chicorium*, *Vaccinium*, *Avena*, *Inula*, *Melilotus*, *Ficus*, and *Beta*.

The term **plant blanches** or **blanches** refers to plant parts which were scalded or boiled in steam or water in order to prepare an extract thereof.

The bee-food obtained according to the method of the invention preferably has at least 50% food-base, more preferably at least 55%. The bee food has preferably no more than 70% food base, and more preferably no more than 60% food base. All percentages mentioned in the present specification are weight per weight (w/w), unless otherwise stated.

The preferred amount of blood or blood filtrate in the bee food is at least 5%, preferably at least 20%. The maximal preferred amount of blood or blood filtrate is 30%, and amounts of around 25% are most preferable.

Except for blood and food base the bee food of the invention includes plant extracts as described below, and water (up to 100%).

Another aspect of the present invention is a bee food product, produced by the method of the invention. The bee food product of the invention comprises food-base, blood or blood filtrate, and preferably also one or more plant extracts.

Another aspect of the invention is honey obtainable from bees fed with bee food according to the invention.

Throughout this specification, the term **honey** is used to include any honey-like beehive product, including those that do not fulfill the nutritional

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definitions of honey as defined by some food regulatory authorities. Natural honey as defined by the National Honey Board of the United States (<http://www.nhb.org>) will be referred to as "*pure honey*" or "*regular honey*".

Honey according to the invention was found to contain as much as 6mg protein per 1g honey, which is up to 10 times more than the protein content of honey produced by bees fed with floral bee food. Thus, another aspect of the invention is honey containing at least 0.2% protein, preferably at least 0.4% protein, more preferably about 0.5 to 0.7% protein, most preferably about 0.6% protein.

Preferably, proteins found in honey according to the invention include at least one of hemoglobin, beta-globin, rho-globin, alpha A globin, alpha D globin, Ig gamma chain, apolipoprotein A1, Ig light chain, PIT 64 protein, and preproalbumin. In one embodiment of honey according to the invention all these proteins were found in the honey as collected from the beehive.

Another aspect of the invention is a method for producing honey from bees comprising:

1. preparing bee food according to the invention;
2. feeding the bee food to the bees; and
3. collecting the honey produced by the bees.

The invention also provides a method of treating side effects of chemotherapy, the method comprising providing a subject undergoing chemotherapy with an effective amount of honey comprising blood components.

The term ***blood components*** refers to compounds that are known in the art to be found in blood or to be obtainable from blood, and not to be found in honey obtained from bees that are fed with conventional floral bee-food. Non-limiting examples of blood components are proteins, as found in honey according to the invention. Preferably, blood components do not include blood hydrolysates.

Preferably, honey comprising blood components is obtained from bees fed with a food premix containing blood components. More preferably, it is obtained from bees fed with bee food according to the invention.

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The terms "*honey comprising blood components*" and "*enriched honey product*" are used interchangeably in this specification.

The term *subject undergoing chemotherapy* includes subjects before, during or after treatment. Thus, the subject may be provided with one or more
5 doses of the enriched honey product at any stage before, during and/or after treatment.

The term *treating* as used herein refers to preventing, ameliorating and/or eliminating chemotherapy side effects.

Non-limiting examples of chemotherapy side effects that may be treated in
10 accordance with the invention include pancytopenia, myelosuppression (bone marrow suppression), neutropnia, anemia, thrombocytopenia, deterioration of hemoglobin levels and decrease in quality of life.

Another aspect of the invention is a pharmaceutical or nutraceutical composition for preventing or ameliorating side effects of chemotherapy, the
15 composition comprising as an active ingredient honey comprising blood components. Preferably the honey is obtained from bees fed with bee food-product containing blood component, and more preferably the honey is obtained from bees fed with bee food product according to the invention.

Finally, the present invention provides use of honey comprising blood
20 components in the preparation of a pharmaceutical or nutraceutical composition for treating side effects of chemotherapy.

BRIEF DESCRIPTION OF THE FIGURES

Figs. 1A-1B provide 2D gel electrophoresis of honey produced from bees fed with conventional honey (Fig. 1A) and enriched honey product produced
25 from bees fed with a bee food product according to the invention (Fig. 1B).

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DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

In order to understand the invention and to see how it may be carried out in practice, preferred embodiments will now be described, by way of non-limiting examples only.

5

Preparation of bee-food and honey

Food for bees was prepared by mixing pure honey with blanches of *Echinacea*, *Uncaria*, *Eleutherococcus*, *Urtica*, *Calendula*, *Trifolium*, *Melissa*, *Morus*, *Ribes*, *Taraxacum*, *Chicorium*, *Vaccinium*, *Avena*, *Inula*, *Melilotus*, *Ficus*, and *Beta* and with blood filtrate of hens.

10

The blood filtrate was prepared from fresh hen blood, supplied by a local slaughter house, frozen for a week at a temperature of about -25°C, defrosted by leaving for two days at room temperature, and filtered to obtain blood filtrate which was substantially free from solid particles larger than 0.1mm. The filtrate was then mixed for 10 min. at 4000cps, to improve its homogeneity.

15

A blanch was prepared from equal amounts of the herbs mentioned above. The blood filtrate and the blanch were mixed with 4 liters of pure (regular) honey.

The amount of bee-food obtained this way (total of 8 liters) was found suitable for feeding one beehive for a week. After five weeks feeding with the above bee-food, honey was collected. Feeding and collecting were carried out by means known *per se* in the art of apiculture.

20

Effect of consuming the honey

A clinical experiment was conducted to test the possibility of providing the honey, prepared as described above, to patients receiving chemotherapy as a prophylactic treatment against neutropenia.

25

25 patients were enrolled in the experiment. The median age was 57 years, and the female/male ratio was 2:1. Eligible patients had histologically proven primary or metastatic cancer. Patients were treated with CEF (cyclophosphamide,

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epirubicin, 5FU), TP (paclitaxel or docitaxel, platinol), gemcitabine and single agent taxanes as adjuvant or treatment for metastatic disease. All patients previously had severe neutropenia which developed during the same treatment schedule and were treated with G-CSF. In the following course of chemotherapy, patients received 5g/day of honey (prepared as described above) in the morning on an empty stomach, on the day of starting treatment of every course for 5 days. Weekly CBC's were obtained during treatment.

The honey of the invention was found to be effective in decreasing the incidence of severe neutropenia in 44% of the patients and decreasing the incidence of anemia in 64% of the patients. The incidence of thrombocytopenia was also very low (only two patients). Hemoglobin levels improved in most patients. One third of the patients reported an improvement of their quality of life during honey intake. No side effects were noticed following honey intake. The clinical results are summarized in Table I.

Table I: Blood Count Status Before and After treatment with Honey		
During chemotherapy Before honey, No. of patients (%)		During chemotherapy With honey, No. of patients (%)
Neutrophils (absolute No.)		
<900/ mm ³	25 (100%)	14(56)
>900/ mm ³	0	11(44)
Hemoglobin		
>11 gr / dL	7(28)	16(64)
10-11 gr / dL	6(24)	3(12)
<10 gr / dL	12(48)	6(24)
Thrombocytes (absolute No.)		
>90000/mm ³	17(68)	23(92)
<90000/mm ³	8(32)	2(8)

It can be seen from the experiment that the honey of the invention had a significant effect in treating side effects of chemotherapy.

Identification of proteins in honey according to the invention

Comparative analysis of protein content in regular and enriched honey products was performed by using 2D gel electrophoresis and LC/MS. Significant quantitative and qualitative differences between protein content was determined.

5 *2-D electrophoresis*

Honey samples (5g of each) were diluted in 20 ml of DDW (double distilled water) followed by overnight dialysis in dialysis tubing (12,000-14,000 kDa cutoff) against PBS. Proteins were precipitated by acetone (final concentration 80%). 2D-PAGE was performed using a Protean 2D-
10 Electrophoresis system (BioRad). The protein pellets were solubilized in isoelectric running buffer containing 0.5% IPG buffer (carrier ampholyte mixture), 7M urea, 2M Thiourea, 2.0% CHAPS (3-[(3-Cholamidopropyl)-dimethylammonio]-1-propane sulfonate) a trace of bromophenol blue and 20mM DTT. 200-300µg protein was loaded onto each pH 3-10NL, 11 cm IPG strips
15 (BioRad). Protein loading by re-hydration was performed at 20°C for 12 hours at 50V followed by isoelectric focusing steps of 200, 500, 1,000, 8,000V until 70,000 Volt/hr. The second dimension of the electrophoresis was carried out using pre-cast gradient gels of 4-20% polyacrylamide (Criterion, BioRad). Gel images were taken with a Fluor-S imager (BioRad) and the images were
20 analyzed with the PDQuest software (BioRad). Spots that were differentially expressed were cut out using the BioRad Spot Cutter.

In gel proteolysis and mass spectrometry analysis

The gel spots were treated with 50% acetonitrile in 10 mM ammonium bicarbonate and re-hydrated with 10% acetonitrile in 10 mM ammonium
25 bicarbonate containing about 0.1µg trypsin per sample. The gel pieces were incubated overnight at 37°C and the resulting peptides were recovered.

The tryptic peptides were resolved by reverse-phase chromatography on 0.1 x 300mm fused silica capillaries (J&W, 100 micrometer ID) home filled with porous R2 10 micron (Applied Biosystems). The peptides were eluted using 80

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min linear gradient of 5 to 95% acetonitrile with 0.1% formic acid in water at flow rate of about 0.3 μ l/min. The liquid from the column was electrosprayed into an ion trap mass spectrometer (DecaXP, Finnigan, San Jose, CA). Mass spectrometry was performed in the positive ion mode using repetitively full MS scan followed by collision induced dissociation (CID) of the most dominant ion selected from the first MS scan. The mass spectrometry data was compared to simulated proteolysis and CID of the proteins in the NR-NCBI database using the Pep-Miner software (I. Beer, IBM). All the identifications were manually validated.

10 **Results**

The protein concentration of the honey according to the invention was detected by the Bradford method [Bradford, M. (1976) Anal. Biochem. **72**, 248–254] and found to be 6 mg/g (0.6%) vs. 0.62 mg/g (0.062%) in regular pure honey. 2D gel electrophoresis revealed significant difference in the protein patterns of the two honey types (Fig. 1). Five unique spots were detected in 2D gel of the enriched honey product and identified by LC/MS analysis (Table II).

Table II: protein content in the enriched honey product

Spot number in gel (ssp)	Identified protein
1 (9062)	1. beta-globin 2. rho-globin 3. alpha A globin 4. alpha D globin
2 (9063)	1. beta-globin 2. rho-globin 3. alpha A globin 4. alpha D globin 5. Ig gamma chain
3 (9064)	1. Apolipoprotein A1 2. Ig light chain
4 (9065)	PIT 64 protein
5 (9066)	Preproalbumin

CLAIMS:

1. A method for producing honey from bees comprising:
 - (a) preparing bee food;
 - (b) feeding the bee food to the bees; and
 - 5 (c) collecting the honey produced by the bees,wherein the bee-food comprises bee food-base and blood.
2. The method according to claim 1, wherein said blood is in the form of blood powder or blood-filtrate.
3. The method according to claim 1 or 2, wherein said blood is of an avian
10 or a mammal.
4. The method according to any one of the preceding claims, further comprising a plant extract.
5. The method according to any one of the preceding claims, wherein said bee food-base is selected from a sugar solution such as a sucrose, glucose or
15 fructose solution, natural pollen, artificial pollen, pure honey, and mixtures thereof.
6. The method according to claim 5, wherein said food-base is pure honey.
7. The method according to claim 3, wherein said avian or mammal is selected from cows, hens, turkeys, sheep and pigs.
- 20 8. The method according to claim 4, wherein said plant extract is a plant blanch.
9. The method according to claim 8, wherein said plant blanch are blanches of plants selected from *Echinacea*, *Uncaria*, *Eleutherococcus*, *Urtica*, *Calendula*, *Trifolium*, *Melissa*, *Morus*, *Ribes*, *Taraxacum*, *Chicorium*, *Vaccinium*, *Avena*,
25 *Inula*, *Melilotus*, *Ficus*, and *Beta*.
10. The method according to any of claims 1-9 wherein the honey contains at least 0.2% protein, preferably at least 0.4% protein, more preferably about 0.6% protein.

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11. The method according to any of claims 1-10, comprising at least one of hemoglobin, beta-globin, rho-globin, alpha A globin, alpha D globin, Ig gamma chain, apolipoprotein A1, Ig light chain, PIT 64 protein, and preproalbumin.
12. The method according to claim 11 comprising beta-globin, rho-globin,
5 alpha A globin, alpha D globin, Ig gamma chain, apolipoprotein A1, Ig light chain, PIT 64 protein, and preproalbumin.
13. Honey obtainable from bees fed with bee-food comprising bee food-base and blood.
14. Honey according to claim 13, wherein said blood is in the form of blood
10 powder or blood-filtrate.
15. Honey according to claim 13 or 14, wherein said blood is of an avian or a mammal.
16. Honey according to any of claims 13-15, further comprising plant extract.
- 15 17. Honey according to any of claims 13-16, wherein said bee food-base is selected from a sugar solution such as a sucrose, glucose or fructose solution, natural pollen, artificial pollen, honey, and mixtures thereof.
18. Honey according to claim 17, wherein said food-base is honey.
19. Honey according to claim 15, wherein said avian or animal is selected
20 from cows, hens, turkeys and pigs.
20. Honey according to claim 16, wherein said plant extract is a plant blanch.
21. Honey according to claim 20, wherein said plant blanch are blanches of plants selected from *Echinacea*, *Uncaria*, *Eleutherococcus*, *Urtica*, *Calendula*,
25 *Trifolium*, *Melissa*, *Morus*, *Ribes*, *Taraxacum*, *Chicorium*, *Vaccinium*, *Avena*, *Inula*, *Melilotus*, *Ficus*, and *Beta*.
22. Honey according to any of claims 13-21 containing at least 0.2% protein, preferably at least 0.4% protein, more preferably about 0.6% protein.

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23. Honey according to claim 22, comprising at least one of hemoglobin, beta-globin, rho-globin, alpha A globin, alpha D globin, Ig gamma chain, apolipoprotein A1, Ig light chain, PIT 64 protein, and preproalbumin.
24. Honey according to claim 22 comprising beta-globin, rho-globin, alpha A
5 globin, alpha D globin, Ig gamma chain, apolipoprotein A1, Ig light chain, PIT 64 protein, and preproalbumin.
25. Honey according to claim 14, wherein the blood filtrate is obtainable by freezing blood as to break blood cells, defrosting the frozen blood, and filtering the defrosted blood from solid residues.
- 10 26. A method for treating side effects of chemotherapy, the method comprising providing a subject undergoing chemotherapy with an effective amount of honey comprising blood components.
27. A method according to claim 26, wherein said honey is obtainable from bees fed with a food product containing blood components.
- 15 28. A method according to claim 26, wherein said honey is according to any one of claims 13 to 22 or 24.
29. A method according to any one of claims 26 to 28, wherein said side effects include at least one of pancytopenia, myelosuppression, bone marrow suppression, neutropnia, anemia, thrombocytopenia, deterioration of hemoglobin
20 levels and decrease in quality of life.
30. Use of honey comprising blood components in the preparation of a pharmaceutical or nutraceutical composition for treating side effects of chemotherapy.
31. Use according to claim 30, wherein said honey is obtainable from bees fed
25 with a food product containing blood components.
32. Use according to claim 30, wherein said honey is according to any one of claims 13 to 22 or 24.
33. Use according to claim 30, wherein said side effects include at least one of pancytopenia, myelosuppression (bone marrow suppression), neutropnia, anemia,

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thrombocytopenia, deterioration of hemoglobin levels and decrease in quality of life.

34. A pharmaceutical or nutraceutical composition for preventing or ameliorating side effects of chemotherapy, the composition comprising as an active ingredient honey comprising blood components.
35. A pharmaceutical or nutraceutical composition according to claim 34, wherein said honey is obtainable from bees fed with food-product containing blood component.
36. A pharmaceutical or nutraceutical composition according to claim 34, wherein said honey is according to any one of claims 13 to 22 or 24.
37. A pharmaceutical or nutraceutical composition according to claim 34, wherein said side effects include at least one of pancytopenia, myelosuppression (bone marrow suppression), neutropnia, anemia, thrombocytopenia, deterioration of hemoglobin levels and decrease in quality of life.
38. A bee food product comprising bee food-base and blood.
39. A method for preparing a bee food product according to claim 38 comprising mixing bee food-base with blood, preferably together with one or more plant extracts.

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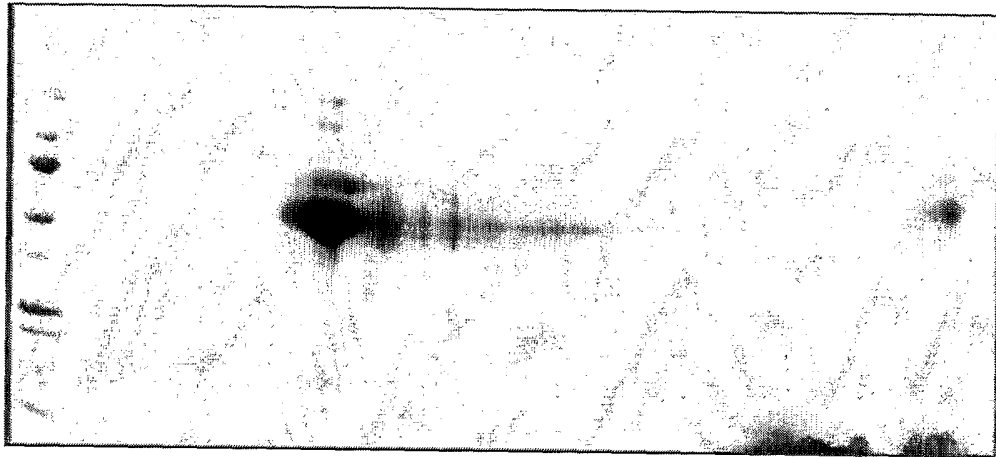


FIG. 1A

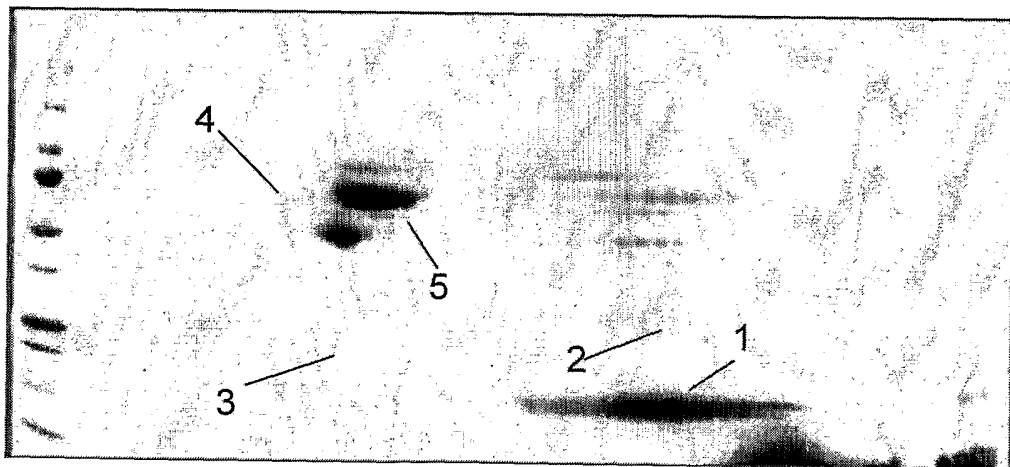


FIG. 1B

INTERNATIONAL SEARCH REPORT

International application No
PCT/IL2006/000117

A. CLASSIFICATION OF SUBJECT MATTER

INV. A23L1/08 A23L1/03 A61K35/64 A23K1/18 A23K1/16
A61P7/00

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)

A23L A61K A23K

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 practical, search terms used)

EPO-Internal, WPI Data, PAJ, FSTA, BIOSIS, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Week 200049 Derwent Publications Ltd., London, GB; AN 2000-533514 XP002376731	26, 29, 30, 33, 34, 37
A	LI H., WANG R., ZOU J., ZHOU J.: "Anticancer goose blood preparation" & CN 1 254 561 A (HUBEI CHINESE MEDICINE COLLEGE HOSPITAL) 31 May 2000 (2000-05-31) abstract	1-25, 27, 28, 31, 32, 35, 36, 38, 39
	----- -/--	

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"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

12 April 2006

Date of mailing of the international search report

04/05/2006

Name and mailing address of the ISA/

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Couzy, F

INTERNATIONAL SEARCH REPORT

International application No

PCT/IL2006/000117

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Week 199739 Derwent Publications Ltd., London, GB; AN 1997-416197 XP002376732 WANG K.: "Anti-anaemic powder" & CN 1 113 804 A (WANG K.) 27 December 1995 (1995-12-27) abstract -----	1-39
A	US 5 604 205 A (MAKAROV ET AL) 18 February 1997 (1997-02-18) column 3, lines 7-11 example 5 column 1, lines 9-24 column 2, lines 55-64 column 3, lines 8-11 -----	1-39
A	US 5 505 980 A (LEE ET AL) 9 April 1996 (1996-04-09) column 1, lines 11-23 column 4, lines 15-24 -----	1-39
A	PATENT ABSTRACTS OF JAPAN vol. 010, no. 199 (C-359), 11 July 1986 (1986-07-11) & JP 61 040756 A (TATSUMI CHIKURA), 27 February 1986 (1986-02-27) abstract -----	1-39

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2006/000117

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 26-29 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2006/000117

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