

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 July 2009 (23.07.2009)

PCT

(10) International Publication Number
WO 2009/089975 A1

(51) International Patent Classification:

A23C 11/10 (2006.01) A23L 2/02 (2006.01)
A23L 1/30 (2006.01) A61K 31/05 (2006.01)
A23L 1/305 (2006.01) A61P 9/12 (2006.01)

(21) International Application Number:

PCT/EP2008/067537

(22) International Filing Date:

15 December 2008 (15.12.2008)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

08150339.3 17 January 2008 (17.01.2008) EP

(71) Applicant (for all designated States except AE, AG, AU, BB, BH, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, IN, KE, KN, LC, LK, LS, MT, MW, MY, NA, NG, NZ, OM, PG, SC, SD, SG, SL, SZ, TT, TZ, UG, US, VC, ZA, ZM, ZW): **UNILEVER NV** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant (for AE, AG, AU, BB, BH, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, KE, KN, LC, LK, LS, MT, MW, MY, NA, NG, NZ, OM, PG, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW only): **UNILEVER PLC** [GB/GB]; a company registered in England and Wales, under company no.41424 of Unilever House, 100 Victoria Embankment, London Greater London EC4Y 0DY (GB).

(71) Applicant (for IN only): **HINDUSTAN UNILEVER LIMITED** [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Maharashtra, Mumbai 400 020 (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DRAIJER,**

Richard [NL/NL]; Unilever R & D Vlaardingen B.V., Olivier van Noortlaan 120, NL-3133 AT Vlaardingen (NL). **DEN HARTOG, Sandra** [NL/NL]; Unilever R & D Vlaardingen B.V., Olivier van Noortlaan 120, NL-3133 AT Vlaardingen (NL). **MULDER, Theodorus, Pierre, Jacques** [NL/NL]; Unilever R & D Vlaardingen B.V., Olivier van Noortlaan 120, NL-3133 AT Vlaardingen (NL).

(74) Agent: **JOPPE, Hermina, L, P;** Unilever Patent Group, Olivier van Noortlaan 120, NL-3133 AT Vlaardingen (NL).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(54) Title: FOOD COMPOSITION

(57) Abstract: A liquid food product comprising 0.1 to 1.5 wt% of polyphenols, wherein said polyphenols contain a mixture of polyphenols from red grape and polyphenols from red wine in a weight ratio of from 1:1 to 1:5, closed container comprising 50 to 250 ml of the liquid food product and use of the liquid food product for reducing blood pressure.



WO 2009/089975 A1

Food composition**Field of the invention**

The invention relates to a food composition, specifically to a
5 functional food composition having one or more health effects
in humans. In particular, such health effect is related to a
decreased risk of cardiovascular disorders.

Background to the invention

10 Polyphenolic compounds (hereinafter polyphenols) enjoy a
considerable scientific interest for their health promoting
properties. Epidemiological studies have shown that consumption
of foods rich in polyphenols is associated with a lower
incidence of cardiovascular disorders.

15

Since polyphenols are widespread among plants and plant
products, polyphenols are naturally present in many foods
including fruits, vegetables and fruit drinks, in varying
amounts.

20

A number of studies in the prior art were directed to red grape
products, such as red grape juice and red wine.

Well-known is the so-called 'French paradox'. The paradox is
25 the low cardiovascular mortality rate observed in Mediterranean
populations in association with red wine consumption despite a
high saturated fat intake.

Effects of grape products on various cardiovascular health
30 markers, including blood pressure, platelet function and plasma
lipid profiles, have been evaluated in a number of human
trials, see for example the overview as given in WO2005/122793.

For the application in functional food products, grape juice and red wine are less suitable, since in juice and wine the concentration of polyphenols is relatively low. Also, when juice or red wine are added to a functional food composition, there may be product components introduced into the food that are not desirable, such as alcohol and sugar.

Dozens of different grape and wine extracts are commercially available, the extracts include grape extract, wine extract, skin- and/or seed extract. However most of these extracts are not suitable for application in a functional food, since they are not efficacious or have a bad taste.

EP-B-930831 describes a plant-derived flavonol-containing dry composition obtained from grapes, wine or flavonol-containing by-products or waste-products of wine making having a high polyphenol content, preferably at least 45% polyphenols. The dry composition is suitable for reducing the risk of cardiovascular disease. In particular, the composition has the effect of inhibiting oxidation of plasma LDL, stimulation of TGF- β production, inhibiting platelet aggregation and stimulating fibrinolysis. The dry composition is used as a medicament or as food supplement.

FR 2772235 describes polyphenol compositions comprising a concentrated grape juice (comprising 1-20 wt% of polyphenols), wine extract (comprising 1-20 wt% of polyphenols) and a hydrosoluble olive extract comprising 0.5 to 40 wt% of polyphenols.

WO2005/122793 discloses a fruit juice product comprising a combination of grape juice extract and wine extract.

Anonymous: "Boisson au soja enrichi en calcium, XP002471959 retrieved from the internet 2008-03-07 discloses a soy product comprising grape-seed extract in an undisclosed amount.

5 A problem with the addition of polyphenols to food products is that often the taste of the product is negatively affected. On the other hand food products containing polyphenols may negatively interact with the bioavailability of the polyphenol ingredients, therewith reducing its effectiveness as a health
10 promoting food product.

It is therefore an object of the present invention to provide a food product which can easily be dosed in adequate amounts, wherein the food product comprises polyphenol components and
15 wherein the type of food and the type and amount of polyphenols is chosen such that good food product quality can be obtained while ensuring a good bioavailability of the polyphenol compounds and which is adequately efficacious in decreasing risk of cardiovascular disorders, specifically reduction of
20 hypertension, inhibition of platelet aggregation, reduction of level of total blood cholesterol and/or reduction of level of LDL cholesterol.

It is a further object of the present invention to provide a
25 useful alternative polyphenol comprising food product.

One or more of these objects are attained according to the invention in a food composition as described below.

30 In a first aspect the invention relates to a liquid food product comprising 0.1 to 1.5 wt% of polyphenols, wherein said polyphenols contain a mixture of polyphenols from red grape and

polyphenols from red wine in a weight ratio of from 1:1 to 1:5, said food product comprising 0.1 to 5 wt% of soyprotein.

Surprisingly it has been found that a combination of red grape
5 and red wine polyphenols, preferably on relatively high amounts, in liquid food products comprising 0.1 to 5 wt% of soy protein provides food products with good polyphenol bioavailability which can easily be dosed.

10 Advantageously the product comprises 0.2 to 1.4 wt%, preferably 0.4 to 1.2 wt% and , more preferably 0.6- 1.0 wt% of polyphenols which are a combination of polyphenols from red grape juice and polyphenols from red wine in a polyphenol weight ratio of from 1:1 to 1:5, more preferred from 1:1.5 to
15 1:3, most preferred from 1:1.8 to 1:2.5, based on the values obtained from the Folin-Ciocalteu method.

Detailed description of the invention

Compositions of the invention are liquid food products. For the
20 purpose of the invention liquid food products are fluid products with a relatively low viscosity, which can readily be poured and which can easily be consumed as a drink. Such products can easily be manufactured, packed and dosed to consumers. Preferred liquid food products of the invention are
25 packed in closed containers comprising single dose portions of 50 to 250 ml, for example from 75 to 125 ml. Preferably single dose portions are separately packed in closed containers e.g. bottles to ensure reliable dosing of ingredients while maintaining optimal freshness of the product. Advantageously
30 the total amount of polyphenols per single dose portion is from 100 to 1500 mg, more preferred from 400 to 1300 mg, especially preferably from 600 to 1000 mg.

The liquid products of the invention comprise from 0.1% to 5 wt% of soy protein more preferably from 0.5 to 4 wt%, for example from 2.5 to 4.5 wt%, more general from 3.0 to 4.0 wt%. These levels can readily be obtained by using a soy-based drink 5 as the basis for the liquid food product of the invention. Typically a soy-based drink is readily available e.g. containing about 3.5 wt% of soy protein. The level of soy-based drink in the liquid product preferably is from 75 to 99.9%, more preferred from 80 to 95 wt%. Alternatively the liquid 10 products of the invention comprise a fruit juice base whereto soy protein has been added, for example orange juice or apple juice with soy protein. Such fruit juice base, which can for example be a mixture of concentrated juice and water or can be undiluted fruit juice, is advantageously present in amounts 15 from 75 to 99.9%, more preferred from 80 to 95 wt% wherein these amounts are calculated as if undiluted, non-concentrated fruit juice is used.

Liquid products of the invention preferably comprise from 0.2- 20 1.4 wt% of polyphenols, more preferred from 0.4 to 1.2 wt%, more preferred from 0.6 to 1.0 wt%. For this purpose the polyphenol content can for example be determined by measuring the gallic acid equivalent value as illustrated in the examples, but other suitable methods e.g. via spectroscopy are 25 readily available.

In a preferred embodiment, the liquid food products of the invention are substantially free from the milk protein casein. For the purpose of the invention this means that the amount of 30 casein from dairy sources such as dairy bovine milk protein is zero or less than 1 wt%, more preferred less than 0.5 wt%, especially 0.1 wt% or lower. More preferred the liquid food products of the invention are substantially free from milk

protein. These low levels of milk proteins ensure that minimum interference between the polyphenols and the milk protein, therewith optimizing the bioavailability of the polyphenols.

- 5 Preferably at least part of the polyphenols originates from a red wine extract having a high polyphenol content. Examples of preferred red wine extracts that are commercially available, are given in table 1.

10 Table 1: Preferred, commercially available wine extracts

Name of wine extract	Name supplier	Polyphenol content according to supplier (w/w)
Provinols	Seppic, France	95%
Meganatural red wine concentrate extract	Polyphenolics, USA	25%

Preferably at least part of the polyphenols originates from a red grape juice extract having a high polyphenol content.

Examples of preferred red grape juice extracts, that are

- 15 commercially available, are given in table 2.

Table 2: Preferred, commercially available red grape juice extracts

Name grape extract	Name supplier	Polyphenol content according to supplier (w/w)
Meganatural Rubired grape juice extract	Polyphenolics, USA	45%
Grape'Active Red H	Ferco Nutraceutique France	80%

Traubenpolyphenol pulver	Breko, Germany	80%
Red grape polyphenol powder	Breko, Germany	80%
Polyphenols from grape	La Gardonnenque SCA, France	92%

The food composition according to the invention may preferably be used as a physiologically functional food product. According to a preferred embodiment, the consumption of the food composition by a human subject is effective in causing in the human subject one or more, preferably two or more, more preferably three or more and most preferably all four of the following effects:

- a) reduction of hypertension;
- b) inhibition of platelet aggregation;
- c) reduction of level of total blood cholesterol;
- d) reduction of level of LDL cholesterol.

The liquid food products according to the invention may comprise common food ingredients in addition to the polyphenols, such as water, flavour, sugar, fruits, minerals, vitamins, stabilisers, thickeners, starches etc. in appropriate amounts. Preferably the liquid food products are soy-based products or fruit juice based products.

The liquid food product of the invention can advantageously be used as a dietary component especially for consumers with a wish to decrease cardiovascular risk, such as high cholesterol levels or increased blood pressure. Especially advantageously the food product is for use to lower blood pressure.

The dosing of the food product preferably is such that a daily dosage contains 600 to 1200 mg, especially 700 to 1000 mg of polyphenols. Especially the daily dosage is administered in a single dose from a closed container comprising 600 to 1200 mg, 5 particularly 700 to 1000 mg of polyphenols. Especially preferable the intake of the daily dose is part of a meal. More preferably the daily dosage is consumed as part of a main meal, particularly breakfast, wherein preferably the overall intake of milk protein during said meal is less than 5 g, more 10 preferred from 0 to 3 g.

Examples

Determination of polyphenol content

Total polyphenol content can be measured using Folin-Ciocalteu 15 colour reagent at mildly basic pH in an UV-spectroscopic method. Quantification can be achieved by determining the total polyphenol content as Gallic Acid Equivalents (GAE) or epicatechin equivalents (ECE), using standard curves for gallic acid and epicatechin.

20

Example 1

Polyphenol containing products were tested as follows:

Thirty-five apparently healthy males age between 18 and 70 25 years and a Body Mass Index between 19 and 30 kg/m² took part in the present study.

Time Schedule of human trial

The trial consisted of 5 consecutive treatment periods which 30 were identical except for the test product consumed. Five treatments using products A to E as described below were subsequently tested in a randomised order according to the following schedule.

Day 1 to 4: subjects consumed the test product during breakfast.

Day 5: subjects consumed test product at the test facility in a fasted state.

5 Starting on day 2 in the evening and up to and including day 5 after the last blood sample was collected the subjects were on a low polyphenol diet including restrictions on alcohol and fish consumption.

During breakfast no milk products were consumed.

10 Blood was collected on day 5 before consumption of the test product and after 1, 2 and 3 hours.

Urine was collected starting on day 4 after breakfast for 24 hours.

A wash out period was observed on days 6 and 7.

15 After the wash out period a new product was tested.

After the fifth treatment period no wash out period was observed.

The measurements consisted of 24 hours urine collection, whereby
20 the hippuric acid content in the total urine is determined.

Urinary hippuric acid is believed to be a good marker to measure the bioavailability of polyphenols and its metabolites in the human body, whereby an increased hippuric acid content is believed to co-incide with a lowering of the blood pressure.

25

Treatments A-E

Treatment A (positive control): daily dosis of gelatine capsules containing 550 mg red wine polyphenols (source provinols, ex Seppic) and 250 mg of red grape polyphenols (source Meganatural,
30 Rubired grape extract ex Polyphenolics). The daily dose was administered with 200 ml water as part of a breakfast and the last dose in a fasted state.

Treatment B (dosing of polyphenols in a dairy base): 550 mg red wine polyphenols and 250 mg of red grape polyphenols (as above) were added to 200 ml of yoghurt in a closed container containing 1.4 wt% of fat, 3.4% of milk protein and 0.7 wt% lactic acid.

5 The daily dose was administered as part of a breakfast and the last dose in a fasted state.

Treatment C (dosing of polyphenols in a soy-based drink base): 550 mg red wine polyphenols and 250 mg of red grape polyphenols
10 as above were added to 200 ml of a soy-based drink, with a protein content of 3.4% and a fat level of 2 wt%. the daily dosis was administered as part of a breakfast and the last dose in a fasted state.

15 Treatment D (dosing of polyphenols in a orange juice base): 550 mg red wine polyphenols and 250 mg of red grape polyphenols as above were added to 200ml of a juice with a carbohydrate content of 4 wt% which is substantially protein free. The daily dose was administered as part of a breakfast and the last dose in a
20 fasted state.

Treatment E (placebo) empty gelatine capsules containing no red wine polyphenols and no grape juice polyphenols. Administered as part of breakfast and the last dose in a fasted state.

25

The following results were obtained

Treatment E lead to a base line hippuric acid content in urine collected over 24 hours of 0.89 g.

30 Treatment A lead to a hippuric acid content of 1.27 g amounting to an increase in the hippuric acid content (compared to the placebo) of 0.38 g/24 h.

Treatment B lead to a hippuric acid content of 1.14 amounting to an increase in hippuric acid content compared to the placebo of 0.25 g/24 h. Overall the increase of hippuric acid in Treatment B compared to the placebo was 34% less than the increase while
5 using Treatment A.

Treatment C lead to a hippuric acid content of 1.26 g amounting to an increase in the hippuric acid content (compared to the placebo) of 0.37 g/24 h. This is a similar increase in hippuric
10 acid as treatment A, showing that soy is an excellent vehicle for the dosage of these polyphenolic compounds.

Treatment D lead to a hippuric acid content of 1.19 g. Amounting to an increase in hippuric acid (compared to the placebo) of 0.30. Overall the increase in hippuric acid content in treatment
15 D compared to the placebo was 21% less than the increase while using treatment A.

Summary of results

Increase in hippuric acid content compared to placebo (g/24 h)

20 A 0.38
B 0.25
C 0.37
D 0.30
E - -

25

These results show the following:

- * The use of relatively high levels of polyphenols provide an increase in hippuric acid content for all liquid food bases.
- * A weight ratio of 1:2.2 of red grape to red wine polyphenols
30 provided in a liquid food provide significant increases in hippuric acid content compared to the placebo.
- * The presence of soy protein unexpectedly does not negatively impact the hippuric acid content in the urine.

* The presence of dairy protein leads to a considerable lowering of the hippuric acid content compared to the soy base and the positive control.

* The use of a liquid juice as the base for administering
5 polyphenols leads to a reduction of hippuric acid content compared to the soy base and the positive control. However, surprisingly the use of a liquid juice in combination with relatively high levels of polyphenols wherein the weight ratio of red grape polyphenols to red wine polyphenols is 1:2.2 still
10 provides an adequately high increase of hippuric acid levels in the blood, as maybe deduced from the high urinary hippuric acid content.

In this context it is submitted that an increase of hippuric
15 acid content of 0.25 g or more (24 h/urine as compared to placebo) is an increase sufficient to have an impact on the blood pressure of the consumer.

Claims

1. A liquid food product comprising 0.1 to 1.5 wt% of polyphenols, wherein said polyphenols contain a mixture of polyphenols from red grape and polyphenols from red wine in a weight ratio of from 1:1 to 1:5 and 0.1 to 5 wt% of soy protein.
2. Liquid food product according to claim 1, comprising 0.2 to 1.4 wt%, preferably 0.4 to 1.2 wt% and more preferably 0.6 to 1.0 wt% of said polyphenols.
3. Liquid food product according to claim 1 or 2, wherein the polyphenols contain polyphenols from red grape and polyphenols from red wine in a weight ratio of from 1:1 to 1:3.
4. Liquid food product according to any one of claims 1 to 3 comprising 0.1 to 5 wt% of soy protein.
5. Liquid food product according to any one of claims 1 to 3 comprising 75 to 99.9 wt% of fruit juice.
6. Liquid food product according to any one of claims 1 to 5 comprising no or less than 1 wt% of casein, preferably comprising no or less than 1 wt% of milk protein.
7. Liquid food product according to any one of claims 1 to 6 packed in closed container comprising 50 to 250 ml of the liquid food product.

8. Liquid food product according to claim 7, wherein the closed container comprises 75 to 125 ml of the liquid food product.
9. Liquid food according to claim 7 or 8 comprising per single dose 100 to 1500 mg, preferably 400 to 1300 mg and even more preferably 800 to 1100 mg of polyphenols.
10. Use of the liquid food product according to any one of claims 1 to 9 for reducing blood pressure.
11. Use according to claim 10, wherein the use involves the daily consumption of a single dose in accordance to claim 7, 8 or 9.
12. Use according to claim 11, wherein the consumption takes place as part of a meal, preferably breakfast.
13. Use according to claim 12, wherein said meal provides an overall intake of less than 5 gram, more preferred 0 to 3 gram of milk protein.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2008/067537

A. CLASSIFICATION OF SUBJECT MATTER

INV. A23C11/10 A23L1/30 A23L1/305 A23L2/02 A61K31/05
A61P9/12

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)
A23C A23L 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 practical, search terms used)

EPO-Internal, WPI Data, FSTA, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2005/122793 A (UNILEVER NV [NL]; UNILEVER PLC [GB]; LEVER HINDUSTAN LTD [IN]; DRAIJER) 29 December 2005 (2005-12-29) cited in the application page 3, lines 11-20 page 4, lines 25-31 page 5, lines 15-27 page 6, lines 3,4 page 8, lines 6-28 page 9, lines 4-10,20 page 12, lines 10-15 page 18, lines 29-31 page 26, lines 1-3,22-25 page 28, line 5; table 7 ----- -/--	1-13

☒ 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

11 May 2009

Date of mailing of the international search report

26/05/2009

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

de La Tour, Camille

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/067537

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ANONYMOUS: "Boisson au soja enrichi en calcium"[Online] 2008, XP002471959 Retrieved from the Internet: URL:http://ooshop.com> [retrieved on 2008-03-07] the whole document -----	1-13
A	WIEL VAN DE A: "[Nutrition and health—favorable effect of wine and wine flavonoids on cardiovascular diseases]" MEDLINE, 21 December 2002 (2002-12-21), XP002301608 the whole document -----	1-13
A	"What is the ultimate OPC+ ?" INTERNET CITATION, [Online] 2003, XP002301604 Retrieved from the Internet: URL:http://www.health-diets-and-weight-loss.com/find_out_more/antioxidant/s/ultimateops.htm> [retrieved on 2004-10-20] the whole document -----	1-13
A	DE 20 2006 002700 U1 (BENEDIKTUS KRAEUTERLABOR STRAT [DE]) 11 May 2006 (2006-05-11) the whole document -----	1-13
A	FR 2 772 235 A (FABRE PIERRE SANTE [FR]) 18 June 1999 (1999-06-18) cited in the application abstract page 3, lines 15-20 page 4, line 2 page 5, lines 30-34 examples 1,3,5 -----	1-13
A	GB 1 356 689 A (CALPIS FOOD IND CO LTD) 12 June 1974 (1974-06-12) page 1, lines 16,17,41-46,73,74 page 3; table 1 page 4, lines 3-6,32-37 page 5, lines 3-7 -----	1-13
A	EP 0 930 831 A (HOWARD FOUNDATION [GB]) 28 July 1999 (1999-07-28) cited in the application paragraphs [0005], [0018], [0028], [0032], [0034], [0036], [0048], [0064] example 7 table 6 -----	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2008/067537

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2005122793	A	29-12-2005	NONE	
DE 202006002700	U1	11-05-2006	NONE	
FR 2772235	A	18-06-1999	WO 9930724 A1	24-06-1999
GB 1356689	A	12-06-1974	CA 937094 A1	20-11-1973
			CH 549348 A	31-05-1974
			DE 2162865 A1	06-07-1972
			FR 2120794 A5	18-08-1972
			IT 1049304 B	20-01-1981
			NL 7117371 A	20-06-1972
EP 0930831	A	28-07-1999	AT 245364 T	15-08-2003
			AU 735221 B2	05-07-2001
			AU 4310597 A	14-04-1998
			AU 4310697 A	14-04-1998
			BR 9713212 A	04-04-2000
			BR 9714341 A	11-04-2000
			CA 2266318 A1	26-03-1998
			CN 1230956 A	06-10-1999
			CN 1230875 A	06-10-1999
			CZ 9900973 A3	11-08-1999
			DE 69723713 D1	28-08-2003
			DE 69723713 T2	15-04-2004
			EA 2760 B1	29-08-2002
			ES 2205207 T3	01-05-2004
			WO 9811789 A1	26-03-1998
			WO 9812189 A1	26-03-1998
			GB 2317889 A	08-04-1998
			HK 1020843 A1	31-10-2003
			ID 21340 A	27-05-1999
			IL 129034 A	10-03-2002
			JP 2001506579 T	22-05-2001
			JP 2001503391 T	13-03-2001
			KR 20000048486 A	25-07-2000
			NO 991351 A	19-05-1999
			NZ 334282 A	25-08-2000
			PL 332306 A1	30-08-1999
			PL 332312 A1	30-08-1999
			SK 35599 A3	06-08-1999
			TR 9900610 T2	21-06-1999
			TR 9900626 T2	21-07-1999
			US 6099854 A	08-08-2000