



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : <b>A23P 1/08, A21D 13/00, 13/08</b></p>	<p><b>A3</b></p>	<p>(11) International Publication Number: <b>WO 98/42214</b></p> <p>(43) International Publication Date: 1 October 1998 (01.10.98)</p>
<p>(21) International Application Number: PCT/GB98/00846</p> <p>(22) International Filing Date: 20 March 1998 (20.03.98)</p> <p>(30) Priority Data: 9706300.2 26 March 1997 (26.03.97) GB</p> <p>(71) Applicant (for all designated States except US): DALGETY PLC [GB/GB]; 100 George Street, London W1H 9RH (GB).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): DIMAKOU, Julie, Panagoula [GB/GB]; 73 Winfold Road, Waterbeach, Cambridgeshire CB5 9QF (GB). CANDY, Michael, Lane [GB/GB]; Homewood, Quarry Lane, Kingscote, Tetbury, Gloucestershire GL8 8XY (GB).</p> <p>(74) Agents: PRICE, Andrew, Vincent et al.; Fry Heath &amp; Spence, The Old College, 53 High Street, Horley, Surrey RH6 7BN (GB).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report.</i></p> <p>(88) Date of publication of the international search report: 14 January 1999 (14.01.99)</p>	
<p>(54) Title: EDIBLE LIPID-PROTEINS FILMS AND COATINGS</p>		
<p>(57) Abstract</p>		
<p>Edible films and coatings suitable for use as moisture barriers in food (such as multi component foods), emulsions and dry mixes for preparing such films, foods incorporating them and processes for producing them.</p>		

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/62 98/00846

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 6 A23P1/08 A21D13/00 A21D13/08				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols) IPC 6 A23P A21D				
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)				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	EP 0 547 551 A (NAT STARCH CHEM INVEST) 23 June 1993  see page 2, line 56 - page 5, line 36 see page 8, line 55 - page 10, line 24 see examples see claims  ---  -/--	1,10,11, 13-15, 22-26, 28,29, 35-44, 46,52, 55,56, 71,72, 74,75		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.                 </td> <td style="width: 50%; border: none;"> <input checked="" type="checkbox"/> Patent family members are listed in annex.                 </td> </tr> </table>			<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.	<input checked="" type="checkbox"/> Patent family members are listed in annex.
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.	<input checked="" type="checkbox"/> Patent family members are listed in annex.			
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<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">                 *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             </td> <td style="width: 50%; border: none;">                 *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.                  *&amp;* document member of the same patent family             </td> </tr> </table>			*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
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Date of the actual completion of the international search  10 July 1998		Date of mailing of the international search report  02.11.98		
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo.nl, Fax: (+31-70) 340-3016		Authorized officer  Vuillamy, V		

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GL 98/00846

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 465 801 A (NESTLE SA) 15 January 1992  see the whole document ---	1,8,10, 11,13, 14, 22-26, 35-39, 52,55, 56,71, 72,74,75
X	US 5 019 403 A (KROCHTA JOHN M) 28 May 1991  see column 4, line 21 - column 5, line 12 ---	1,2,4,5, 8-11, 21-26, 52,55, 56,67, 74,75
X	US 5 543 164 A (KROCHTA JOHN M ET AL) 6 August 1996  see column 1, line 1 - column 2, line 26 see column 6, line 7 - line 50 see column 7, line 1 - column 8, line 21 see examples ---	1,2,4,5, 9-11,13, 22-26, 35-37, 52,55, 56,67, 71,72, 74,75
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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/00846

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 323 922 A (J.R. DURST) 6 June 1967  see column 1, line 29 - column 3, line 61 see examples ---	1,2,4,5, 8-11,13, 15-29, 35-37, 40, 42-44, 46,52, 55-59, 67,71, 72,74,75
X	FR 2 590 122 A (GEL DOR) 22 May 1987  see page 3, line 1 - page 6, line 18 see examples 1,2 ---	1,7,8, 11,12, 16-26, 28,29, 32, 42-46, 52-61, 65-67, 74,75
X	WO 86 05363 A (BEST CHRISTIAN) 25 September 1986  see page 1, line 1 - line 15 see page 3, line 3 - page 5, line 15 ---	1,3,7,8, 11-15, 22-26, 28,29, 32, 35-40, 42, 52-56, 68,70, 74,75
X	EP 0 643 916 A (UNILEVER NV ;UNILEVER PLC (GB)) 22 March 1995 see claims ---	43,45,46
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/CL 98/00846

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 486 076 A (VINK NEE PINCKAERS MARIA AGNES) 20 May 1992  see the whole document ---	1,7, 10-12, 14, 22-25, 28,29, 38,39, 52-56, 67,68, 70,74,75
A	EP 0 048 123 A (MERCK & CO INC) 24 March 1982 see page 2 - page 6 see page 8 see page 10 -----	58-64, 68-70

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 98/00846

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 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:
  
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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

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

see FURTHER INFORMATION SHEET PCT/ISA/210

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.:

1-3, 4, 5, 6, 7, 8, 9-15, 16-21, 22-75

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-3, 4 partly, 5, 6 partly, 7 partly, 8, 9-15 all partly, 16-21, 22-75 all partly

In the field of FOODSTUFFS:

- Edible composite film for use as moisture barrier in a FOODSTUFF, the film comprising a conglomerate of lipid and hydrocolloid components, wherein the LIPID COMPONENT is derived from a DRIED FAT COMPOSITION.
- Dry mix for use as a hydratable base in the preparation of the above film.
- Moisture barrier system comprising as separate components, the above dry-mix and a gelling salt solution and opt. a liquid plasticiser.
- Emulsion comprising the above dry-mix in admixture with water.
- FOODSTUFF comprising the above film or emulsion.
- Process for producing an edible composite film as defined above comprising the steps of preparing a dry mix as defined above and hydrating it to produce an emulsion as defined above.
- Process for producing a foodstuff comprising the steps of producing an edible composite film by a process as defined above and applying it to the foodstuff.
- Process for producing a foodstuff comprising the steps of producing an emulsion as defined above and comprising ungelled plant gum, applying it to the foodstuff and gelling the gum.
- Method for preventing the transfer of moisture between constituents of a multi-component food product comprising the step of interposing a film as defined above between the food constituents.
- Method for preventing the transfer of moisture between the atmosphere and a food product comprising the step of interposing a film as defined above between the food and the atmosphere.

2. Claims: 1 partly, 2, 3 partly, 4-6, 7 partly, 8 partly, 9, 10-26 all partly, 27, 28-75 all partly

In the field of FOODSTUFFS:

- Edible composite film for use as moisture barrier in a FOODSTUFF, the film comprising a conglomerate of lipid and hydrocolloid components, wherein the HYDROCOLLOID COMPONENTS comprises (or consists of) a STARCHY LEGUMINOUS SEED PROTEIN



## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

or LUPIN PROTEIN.

- Dry mix for use as a hydratable base in the preparation of the above film.
- Moisture barrier system comprising as separate components, the above dry-mix and a gelling salt solution and opt. a liquid plasticiser.
- Emulsion comprising the above dry-mix in admixture with water.
- FOODSTUFF comprising the above film or emulsion.
- Process for producing an edible composite film as defined above comprising the steps of preparing a dry mix as defined above and hydrating it to produce an emulsion as defined above.
- Process for producing a foodstuff comprising the steps of producing an edible composite film by a process as defined above and applying it to the foodstuff.
- Process for producing a foodstuff comprising the steps of producing an emulsion as defined above and comprising ungelled plant gum, applying it to the foodstuff and gelling the gum.
- Method for preventing the transfer of moisture between constituents of a multi-component food product comprising the step of interposing a film as defined above between the food constituents.
- Method for preventing the transfer of moisture between the atmosphere and a food product comprising the step of interposing a film as defined above between the food and the atmosphere.

3. Claims: 1 partly, 2 partly, 3, 4 partly, 5 partly, 6-9, 10-75 all partly

In the field of FOODSTUFFS:

- Edible composite film for use as moisture barrier in a FOODSTUFF, the film comprising a conglomerate of LIPID, a PROTEIN component, a GELLED PLANT GUM, an EMULSIFIER, WATER and opt. a buffering agent and/or a plasticiser.
- Dry mix for use as a hydratable base in the preparation of the above film.
- Moisture barrier system comprising as separate components, the above dry-mix and a gelling salt solution and opt. a liquid plasticiser.
- Emulsion comprising the above dry-mix in admixture with water.
- FOODSTUFF comprising the above film or emulsion.
- Process for producing an edible composite film as defined above comprising the steps of preparing a dry mix as defined above and hydrating it to produce an emulsion as defined above.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

- Process for producing a foodstuff comprising the steps of producing an edible composite film by a process as defined above and applying it to the foodstuff.
- Process for producing a foodstuff comprising the steps of producing an emulsion as defined above and comprising ungelled plant gum, applying it to the foodstuff and gelling the gum.
- Method for preventing the transfer of moisture between constituents of a multi-component food product comprising the step of interposing a film as defined above between the food constituents.
- Method for preventing the transfer of moisture between the atmosphere and a food product comprising the step of interposing a film as defined above between the food and the atmosphere.

4. Claim : 55 partly

NON-FOODSTUFFS comprising the film of claims 1-41 or the emulsion of claims 52-54.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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