

PATENT SPECIFICATION

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(54) FATTY PRODUCT

(71) We, UNILEVER LIMITED, a company organised under the laws of Great Britain, of Unilever House, Blackfriars, London E/C 4, England, do hereby declare the invention for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:-

The present invention provides a gravy preparation and a process for preparing such a preparation which provides a Dutch gravy similar to that obtained as a result of frying meat in a conventional way.

5 Dutch gravy is usually prepared by frying meat in e.g. margarine or butter and by subsequently mixing the hot liquid ingredients with water. The gravy obtained contains some brown coloured sediment, essentially in the aqueous phase. Gravy obtained from frying meat has a typical taste, attributable to a great extent to the meat juice, which during frying is mixed with the fatty ingredients in which the meat is fried.

10 The fatty product obtained by the present invention can be used for preparing (Dutch) gravy, by just heating it and - if desired - diluting it with water, without even frying meat. Similarly the product of the invention can be used in preparing sauces, soups, flavoured food spreads, etc.

15 According to the present invention a gravy product comprises a dispersion in a water-in-oil edible emulsion of flavouring comprising an additive prepared by heating together a mixture of one or more carbohydrates and amino acids in a carrier until the mixture is discoloured. Suitably the gravy preparation of the invention contains up to 20% of the mixture of salts, and flavouring additive, including optional ingredients e.g. emulsifiers, seasonings and colouring matter, and can contain some 20 - 95%, preferably 50 - 85%, particularly 65 - 80% of a continuous fatty phase. (All percentages are by weight and calculated on the weight of the fatty product, unless otherwise indicated.)

20 The term "fat" as used in this specification includes mixtures of fatty acid triglycerides which are liquid, pourable or plastic at 20°C. Such triglycerides mixtures, when liquid at 20°C, are commonly indicated as "oils" and when plastic or solid at that temperature as "fats"; in this specification, however, the terms "oils" and "fats" are used as synonyms.

25 The term "salt" in this specification includes both "common salt", i.e. sodium chloride, and so-called diet salts, for which generally potassium and/or ammonium salts are used, e.g. their chlorides, phosphates, citrates, succinates etc.

30 Emulsifiers present preferably comprise lecithin and/or a partial glyceride, especially a monoglyceride. By the term "lecithin" reference is made in this specification to phosphatides of animal and preferably vegetable origin. They can contain, in addition to phosphatidyl choline, phosphatidyl ethanolamine, phosphatidyl inositol, other phosphatides, carbohydrates, sterols etc, and form about 25 to 50% of carriers or diluents, e.g. soybean oil in soybean lecithins. The lecithin may include phosphatides that have been chemically or physically treated, e.g. hydrolysed, hydroxylated, hydrogenated or fractionated.

35 Preferably a flavouring additive is used which includes flavours obtained by heating a mixture of amino acids, carbohydrates, a carrier material and a dairy powder, suitably for 5 minutes to 4 or 5 hours or even more at a temperature exceeding 60°C, preferably between 100° and 140°C. (The lower the temperature, the longer heat treatment is required.)

40 Preferably the dairy powder comprises whey powder and/or milk powder, e.g. skim-milk powder. Suitably the weight ratio whey powder:milk powder is from (3 to 5):1. The amino

acids can consist of hydrolysed vegetable and/or animal proteins. The carrier material can be aqueous, e.g. water, or can consist of a mixture of fat and water. Preferably, however, the carrier material consists of fat, since that will lead to the peculiar flavour of fried meat, whereas heating in an aqueous medium leads to a broth or beef-tea taste.

5 Preferably additional meat flavours are added as well, especially those disclosed in 5
British Patent Specification 836,694; these latter flavours are prepared by reacting a
pentose or a hexose monosaccharide with cysteine in the presence of a large excess of water
at an elevated temperature. Preferred flavouring substances of this kind having an aroma
10 and taste akin to cooked meat are obtained when the weight ratio of cysteine to
monosaccharide is between about 0.4 - 1 and 2 : 1. The amount of fresh water should in 10
practice be at least 5, generally 15 to 25 times the amount by weight of the total
aminosaccharide content. Amounts of up to 1500 times may, however, be used. The
reaction may be carried out by heating the mixture under reflux. In many cases the mixture
15 is maintained at its boiling point for from $\frac{1}{4}$ to 4 hours. Similar results may be obtained by
heating for a longer period at a lower temperature, e.g. 24 to 30 hours at 70°C. 15

In addition to the meat flavours previously described a flavouring mixture obtained as a
result of reactions that take place on heating concentrated or dried meat liquor and
carbohydrates is preferably added as well. A suitable meat liquid can have a solids content
20 of 10-80, preferably 30 - 50% by weight of the liquor. Suitable carbohydrates for this
reaction are e.g. hexoses and pentoses, e.g. glucose, fructose, ribose, xylose and arabinose. 20
The last-mentioned flavouring mixture can be obtained by heating the liquid obtained by
pressing uncooked meat or the liquid obtained by cooking meat in water (or by diluting with
water a dried meat liquor), with carbohydrates in a weight ratio of the meat liquor :
carbohydrates of 100 : 1 to 10 : 1. The heating can be effected for about 5 minutes to 5 hours
25 depending on the temperature chosen, which may vary from about 60° - 150°C. 25

Preferably the flavouring additive also includes monosodium glutamate, and/or lower
organic acids, i.e. acids with up to 6 carbon atoms, e.g. acetic acid, butyric acid, caproic
acid, lactic acid etc. and/or their corresponding calcium, ammonium or alkali metal salts.
30 The latter additives are particularly of importance for providing a pleasant, fresh, weakly
acid beef taste to the gravy prepared from the fatty product of the invention. Conventional
seasonings, e.g. pepper, garlic etc. can be added, as well as additional colouring matter,
e.g. caramel. Suitable ranges of the ingredients present in a fatty product obtained by the
invention are e.g. as follows (The ingredients A₁, A₂ and A₃ as illustrated below can be
35 used as such or in spray-dried form. In the latter case these ingredients are preferably
spray-dried together with about 30% by weight of said ingredients of polysaccharides, e.g.
starch, maltodextrin, gum arabic, etc. In the following Table and in the claims the weight
percentages of ingredients A₁, A₂ and A₃ are exclusive said 30% of polysaccharides): 35

40	(i)	fat	20-99%	40
	(ii)	water	0-79%	
	(iii)	salts	0.4-4%	
	(iv)	minor ingredients	0.6-15%	

45 said minor ingredients containing e.g.: 45

A. *flavours:*

1) the heated mixture of amino acids, carbohydrates and fatty carrier material: 0.3-15,
preferably 0.6 - 10%; particularly 2-5%, by weight of the fatty product. (Calculated as
50 spray-dried product, which apart from the heated mixture, includes 30% by weight of the
heated mixture of carrier material necessary for spray-drying the active ingredients. 50
Maltodextrin was used as said carrier material). This heated mixture can be prepared by
heating:

55	whey powder	0 to 80,	preferably 10 to 60	} of the heated mixture	55
			parts by weight		
	milk powder	0 to 30,	preferably 10 to 25		
			parts by weight		

	amino acids and/or salts			
5	(e.g. mono-sodium glutamate and alanine)	5 to 60,	preferably 10-40 parts by weight	5
10	sugars (e.g. glucose)	1 to 35,	preferably 5-25 parts by weight	10
15	carrier material, especially fat	5 to 94,	preferably 20-80 parts by weight	15
			} of the heated mixture	
20	2) reaction products obtained by heating in water a pentose or hexose monosaccharide with cysteine (calculated as dry product)		0 to 14.7, preferably 0.1-1% by weight of the fatty product (calculated as spray-dried product which, apart from the heated mixture, includes 30% of carrier material necessary for spray-drying the active ingredients. Maltodextrin was used as said carrier material).	20
25				25
30	3) reaction products obtained by heating conc. meat liquor and sugars		0 to 14.7, preferably 1-10% by weight of the fatty product (calculated as spray-dried product which, apart from the heated mixture, includes 30% of carrier material necessary for spray-drying the active ingredients. Maltodextrin was used as said carrier material).	30
35				35
40	4) monosodium glutamate		0 to 14.7, preferably 1-5% by weight of the fatty product.	40
45	5) lower organic acids (e.g. lactic acid, citric acid, acetic acid, caproic acid)		0 to 14.7, preferably 1-5% by weight of the fatty product.	45
50	B. <i>emulsifiers</i> :			50
	1) mono/diglycerides		0 to 1.5% by weight of the fatty product	
55	2) lecithin		0 to 1.5, preferably 0.1-1% by weight of the fatty product	55
	C. <i>other minor ingredients</i> :			
60	1) seasonings (e.g. pepper, garlic etc.)		0 to 2% by weight of the fatty product.	60
	2) colouring matter (e.g. caramel)		0 to 14.7, preferably 0.1-0.8% by weight of the fatty product.	

The fatty product of the invention preferably is in the form of a water-in-oil emulsion, especially a water-in-oil emulsion containing 5-80, particularly 20-35 per cent by weight of an aqueous phase in which phase at least the majority of the flavouring and colouring ingredients are dissolved or dispersed. Such emulsions can be prepared by conventional

5 margarine processing techniques, i.e. by dissolving fat-soluble emulsifiers in the fatty phase, preparing the aqueous phase from the remaining ingredients, emulsifying both phases, cooling, crystallizing and packaging the emulsions obtained. 5

Advantageously emulsions are prepared having relatively light and/or relatively dark coloured spots, since such multicoloured products provide a more natural gravy appearance. 10

Multicoloured products can e.g. be prepared by blending a light coloured emulsion with a dark coloured emulsion, e.g. in a static mixer either during or after the cooling and crystallisation stage. 10

The invention will now be illustrated by the following examples (in which all percentages are based on the total weight of the product). 15

Example I

A fatty product in the form of a water-in-oil type emulsion was prepared from 72.3% of a fat blend, consisting of 30 parts of coconut oil, 30 parts of palm oil, 20 parts of soybean oil and 20 parts of hydrogenated soybean oil of a melting point of 36°C. 20

20% of water
7% of minor ingredients consisting of:

A. flavours

1) a fatty mixture, heated for 20 minutes at 120°C, of:

0.22% whey powder
0.06% milk powder
0.08% monosodium glutamate
0.025% alanine
0.048% glucose
0.14% fat.

2) 0.24% of spray-dried reaction products of pentose monosaccharide with cysteine. This flavouring additive was prepared as follows: 35

Commercially available charcoal-treated hydrolysed (casein plus groundnut protein) powder (4 g.) and L-cysteine (2 g.) and D-glucose (1 g.) and D-xylose (1 g.) and water (100 g.) in a vessel fitted with a reflux condenser were heated to boiling for 3 hours. After cooling the product to room temperature, it was brought to pH=6.7 by addition of alkali. The brown-coloured solution had an aroma and taste resembling cooked meat. The solution obtained was spray-dried with 30% of maltodextrin. 40

3) 1.27% of reaction products obtained by heating for 1 hour at 100°C 50 parts cooked meat liquor (solids content 45%) and 3 parts glucose. (This additive was also added as spray-dried product, which contained 70 parts reaction products and 30 parts maltodextrin). 45

4) 0.45% monosodium glutamate.

5) 0.82% lower organic acids (50 parts lactic acid, 35 parts acetic acid and the balance of citric acid and caproic acid). 50

6) 2.947% common salt.

B. emulsifiers

0.4% of monoglyceride
0.3% of soybean lecithin.

The product was prepared by heating the fat blend to 45°C and adding the emulsifiers and subsequently the aqueous phase containing the remaining minor ingredients, including salt. The mixture was then fed into a cooling unit of the Votator A-unit type, cooled to 18-20°C, fed at that temperature into an uncooled crystallized unit in which the temperature rose to about 22°C and finally packed. 60

The crystallized product was in the form of a stable water-in-oil emulsion. Upon melting 100 grams of the product obtained and heating it to 80-100°C and diluting with about 150 65

grams of water a Dutch gravy was obtained of excellent taste and excellent brown colour.

Example II

Example I was repeated with the following exceptions: 40% of a fat blend was used consisting of 60 parts of soybean oil, 3 parts of soybean oil hydrogenated to a melting point of 28°C and 35 parts of fish oil hydrogenated to a melting point of 37°C.

To the fat blend was added (calculated per 1000 kg of fat):

7.5 kg monoglycerides of fully hydrogenated lard.

3.5 g of soybean lecithin.

The balance was the aqueous phase consisting of:

54% of water

6% of the flavours mentioned in Example I.

The water-in-oil emulsion was prepared as described in Example I and liquid filled in plastic tubs at 18°C. A gravy prepared from this product by melting it in a frying pan was of excellent quality in respect of taste and colour.

Example III

Example I was repeated, except that

12% of minor ingredients were added to

15% of water (calculated on the fatty product).

The same flavours were used as in Example I.

The proportions of the flavouring ingredients, including 30% of polysaccharide-carriers of A₁, A₂ and A₃ were:

A₁ 2.76%

A₂ 0.60%

A₃ 4.20%

A₄ 1.80%

A₅ 2.64%

12.00% total

A Dutch gravy prepared from the fatty product was preferred to that prepared from the fatty product of Example I.

WHAT WE CLAIM IS:-

1. A gravy product comprising a dispersion in a water-in-oil edible emulsion of flavouring comprising an additive prepared by heating together a mixture of one or more carbohydrates and amino acids in a carrier until the mixture is discoloured.

2. Product according to Claim 1, in which the emulsion contains 20 - 95% of a continuous fatty phase.

3. Product according to Claim 2, in which the emulsion contains 50 - 85% of a continuous fatty phase.

4. Product according to Claim 3, in which the emulsion contains 65 - 80% of a continuous fatty phase.

5. Product according to any one of the preceding claims, which contains an emulsifier.

6. Product according to Claim 5, in which the emulsifier comprises lecithin and/or a partial glyceride.

7. Product according to any one of the preceding claims, in which the flavouring additive includes flavours that have been prepared by heating amino acids, carbohydrates, a dairy powder and carrier material.

8. Product according to Claim 7, in which the dairy powder comprises whey powder and/or milk powder.

9. Product according to Claim 8, in which the dairy powder comprises a mixture of whey and milk powder in the weight ratio whey powder:milk powder from (3 to 5):1.

10. Product according to any one of the preceding claims, in which the carrier material comprises fat.

11. Product according to any one of the preceding claims, in which the flavouring additive includes flavours that have been prepared by reacting a pentose or hexose monosaccharide with cysteine in the presence of a large excess of water.

12. Product according to any one of the preceding claims, in which the flavouring additive includes a flavouring mixture that has been obtained by reacting a mixture of concentrated or dried meat liquor and carbohydrates.

13. Product according to Claim 12, in which a meat liquor is used of a solids content of 10-80% by weight of the liquor.

14. Product according to Claim 12 or 13, in which the weight ratio of the meat liquor:carbohydrates is from 100:1 to 10:1.

15. Product according to any one of the preceding claims, which includes monosodium glutamate.
16. Process according to any one of the preceding claims, which includes organic acids with up to six carbon atoms.
- 5 17. Product according to any one of the preceding claims, comprising 20-99% of fat, up to 79% of water, 0.4-4% of salts and 0.6-15% of the flavouring additive and optionally emulsifiers, seasonings and colouring matter. 5
18. Gravy product substantially as hereinbefore described with particular reference to any one of the Examples.
- 10 19. Gravy obtained by melting the product as claimed in Claim 18 or 19 and optionally mixing the hot liquid ingredients obtained with water. 10
20. Process for the preparation of a gravy product as claimed in any of the preceding Claims 1-18 substantially as hereinbefore described.

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