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(54) Title of the Invention: **Sprayable edible compositions**
Abstract Title: **Sprayable flavoured edible compositions**

(57) Sprayable edible compositions comprise an oil component, a non-stick component and a flavouring that is typically soluble in, miscible and/or emulsifiable with one or more of the aforesaid components so as to present no or substantially no solid particulates in the composition. Any solid particulates that are present constitute less than 2% by weight of the composition and are less than 0.1 mm in external dimension. The compositions impart flavour, seasoning and/or spiciness particularly of or reminiscent of spices, seasonings and flavours of the Orient to foods. The compositions can be used during cooking of foodstuffs and also to be applied after cooking, and have good self-preservation properties.

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Sprayable Edible Compositions

The present invention relates to sprayable edible compositions, particularly but not exclusively to sprayable flavoured non-stick food and
5 cooking compositions.

According to the present invention there is provided a sprayable edible food composition comprising an oil component, a non-stick component, and a flavouring that is soluble in, miscible with and/or emulsifiable with one or more
10 of the aforesaid components to present no or substantially no solid particulates in the composition.

The flavouring may comprise solids, such as in the form of particles, grains or fine powder, that are dissolved in one or more of the components when mixed therewith. Alternatively or in addition the flavouring may
15 comprise liquid and/or semi-liquid, miscible and/or emulsifiable with one or more of the components in the composition, when mixed therewith.

Preferably the flavouring imparts a flavour and/or smell to the composition and/or to food to which it is applied of or resembling oriental food, seasonings and/or flavourings.
20

In the present specification, reference to the term oriental embraces all regions that can be considered as being on or associated with the Orient, including regions of Asia such as China, Japan, Korea, Vietnam, Taiwan,
25 Thailand, Cambodia, India, Bangladesh, Hong Kong, Indonesia, Malaysia, Philippines, Singapore.

Preferably the flavouring in the composition presents no solid
30 particulates in the composition. However, in certain embodiments the flavouring may present a small amount of small solid particulates, all of which are less than 0.1mm in size (maximum external dimension) and any such

particulates constitute less than 2% by weight of the composition. This in combination with all other solid-free or substantially solid-free components of the composition helps to ensure the composition does not hinder or block up the spray dispensing mechanism through which the composition is sprayed, which typically have a spray orifice of 0.1mm to 0.3mm, more generally 0.2mm.

The flavouring may comprise one or more of a natural, artificial or nature identical flavouring, either alone or as a blend. The flavouring may comprise one or more of a spice, spice extract, spice derivative, herb, herb extract, herb derivative, seasoning, aromatic, soya sauce, yeast extract, hydrogenated vegetable protein. Preferably the flavouring comprises one or more of an oleoresin, distillate, essence and essential oil which may be derived from or resembling spices, herbs, seasonings or other flavourings associated with oriental food.

Preferably the flavouring comprises up to 20% by weight of the composition and desirably between 0.1% and 8% by weight.

The composition preferably comprises up to 95% by weight of oil component, and preferably between 6% and 60% by weight. The oil component may comprise one or more of vegetable oil, olive oil, rapeseed oil, ground nut oil, grape seed oil, safflower oil, sunflower oil, cotton seed oil or any other sprayable plant derived edible oil. The oil component may comprise oil from or derived from non-plant sources such as animal oil, marine organism oil, fish oil, dairy such as butter oil, algal oil, microalgal oil. The oil component may comprise refined oil(s) and/or medium chain triglycerides. The oil component may include dissolved fats, such as one or more of hydrogenated oils and fats, palm oil, coconut oil at temperatures generally considered typical or usual household or kitchen temperatures (as defined herein).

The composition may comprise an aqueous component. The aqueous component may comprise up to 90% and desirably between 10% and 90% by weight of the composition. The aqueous component may be water or may comprise a composition comprised predominantly of water. The aqueous component may comprise water and one or more of soya sauce, alcohol, flavouring, and other generally water soluble ingredients in the composition such as, but not only soluble acid vinegars, lemon juice, fruit juice.

Preferably the composition has an acidic pH at 20°C.

Preferably the composition has a pH of about 4.5 or less, and desirably has a pH of approximately 3.9 at 20°C.

The acidic pH of the composition preferably helps to limit the growth of pathogens, in particular pathogenic micro-organisms, which can occur in the water of the aqueous component of the composition. A pH of about 4.5 will help inhibit the growth of many pathogenic micro-organisms commonly associated with spoilage of food substances such as clostridium botulinum. A pH of approximately 3.9 will help preserve the compositions against growth and multiplication of most if not all potentially serious pathogens.

The composition may comprise an acidic component, such as one or more of vinegar, acetic acid and other edible acids or acidic compositions in appropriate amounts to render the composition acidic. The acidic component may comprise up to about 10% and desirably between about 0.1% and 4% by weight of the composition. A pH buffering substance may be provided, such as but not only sodium acetate.

Preferably the non-stick component comprises lecithin such as soya lecithin and/or modifications and derivatives thereof. The lecithin may be liquid, non-liquid, de-oiled and/or powdered. The non-stick component may

comprise up to about 10% and desirably between about 1% to 8% by weight of the composition. The non-stick component may also be an emulsifier.

5 The composition may comprise up to 30% and desirably between 15% and 25% by weight of a salt component, which preferably comprises common or culinary salt and may comprise one or more of sodium chloride and potassium chloride. Preferably the aqueous component comprises up to about 20% by weight of salt component and desirably less than about 10% by weight. The presence of the salt component at these levels can help with the
10 preservation of the composition, with generally greater preservation effects being achieved at greater concentrations of salt component.

 The composition may comprise soya sauce. The salt component may be provided, at least in part, by the soya sauce in the composition. The
15 composition may comprise up to 50% by weight of soya sauce, and preferably between 5% and 15% by weight of soya sauce.

 The composition may comprise a sugar component which can comprise one or more of monosaccharide, disaccharide, polysaccharide, and
20 their compounds and/or derivatives. Some or all of the sugar component may be comprised in one or more of soya sauce, honey, fruit juice, molasses.

 The presence of the sugar component will help to preserve the composition, in particular the aqueous component.
25

 The composition may comprise alcohol, up to about 10% and desirably between 2% and 8% by weight of the composition. The alcohol may assist in preserving the composition, in particular the aqueous component.

30 In embodiments where one or more of the preservative components are present, acidic pH, sugar component, alcohol and salt component, these

act together to help preserve the composition against spoilage, for example by bacteria, yeast or other micro-organism infection.

5 The composition may comprise an emulsifier which may comprise a protein emulsifier, which may comprise one or more of soya protein, milk protein and pea protein and derivatives thereof. The emulsifier may comprise up to 10% and desirably about 0.1% to 5% by weight of the composition. The emulsifier may comprise one or more of a sucrose ester, lecithin, mono and diglycerides, functional or other derivatives of one or more of these.

10

The composition may comprise a stabiliser which preferably comprises one or more of xanthan gum, carrageenan gum, one or more other hydrocolloids, pectin, pectin/calcium salt combination, derivatives of any of the aforesaid, other stabilizing systems or thickeners or blends thereof.

15

The stabiliser may comprise up to 2%, and more desirably about 0.1% to 1% by weight of the composition.

20 The composition may comprise other components, such as one or more of preservatives, anti-oxidants, flavourings, colorants (natural and/or artificial), hydrolysed protein, yeast extract, chelating agent.

25 The composition preferably comprises a generally homogeneous emulsion, preferably of sprayable viscosity at temperatures generally considered typical or usual household or kitchen temperatures, such as at least between 10°C and 50°C and more typically between 10°C and 40°C. It will be appreciated however that in more unusual or atypical environments the temperatures may be above or below these ranges.

30 Preferably the composition is sprayable using a hand-held spray device, such as a mechanical, finger actuated spray pump dispenser, aerosol spray dispenser, spray apparatus dispensers that use liquefied or pressurised

gas as propellant and/or a trigger actuated pump dispenser. The spray device or apparatus may comprise its own propellant or may depend upon a separate source of propellant.

5 According to a further aspect of the present invention there is provided a method of dispensing a sprayable food composition as described above in any of paragraphs two to twenty eight above, the method comprising spraying a predetermined amount of composition with a known calorific content.

10 According to a still further aspect of the present invention there is provided a dispenser containing a bulk supply of sprayable food composition as described in any of paragraphs two to twenty eight above, the dispenser being arranged to spray upon actuation, a predetermined amount of composition with a known calorific content.

15 Embodiments of the present invention will now be described by way of example only.

20 There are provided sprayable edible compositions, particularly sprayable food compositions and sprayable cooking compositions, which comprise an oil component, a non-stick component and a flavouring that is soluble in, miscible and/or emulsifiable with one or more of the aforesaid components to present no or substantially no solid particulates in the composition.

25 In preferred embodiments of the invention, the composition comprises a non-stick food and cooking composition that can be applied by spraying at typical household and kitchen temperatures to cooking implements and vessels and/or food itself before and/or during the cooking of food, to help
30 prevent sticking of the food to the implements and/or vessels, and to itself. The composition is flavoured, to impart flavour, seasoning and/or spiciness of or reminiscent of spices, seasoning and flavours of the Orient to foods. The

compositions find particular application in stir-frying, shallow frying and roasting cooking techniques, although applications in other culinary techniques are possible. The compositions can also be used at or towards the end of cooking or after cooking to provide additional flavouring.

5

The combined properties of providing a non-stick composition that is flavoured to impart flavours of or reminiscent of flavours of the Orient provides an innovative convenience for the preparation and cooking of foods.

10 However, it will be appreciated that food compositions of the present invention could be used in a way that does not directly exploit any non-stick cooking qualities that it has, such as use as a flavouring spray for foodstuffs, like salads, generally bland foodstuffs such as rice, potato, noodles and otherwise to introduce and/or enhance the flavour of foodstuffs in general.

15

 In more detail the food composition comprises a generally homogenous mix of the various components and constituents thereof. The compositions of the present invention are generally relatively stable emulsions, although mixing before use, such as by shaking or otherwise
20 agitating the container can help to ensure consistency and homogeneity of composition.

 In certain embodiments of the invention, the flavouring comprises solids including semi-solids, such as in the form of particles, grains or fine
25 powder, that are soluble in one or more of the components when mixed therewith. In such embodiments any undissolved flavouring is preferably removed prior to packaging the composition for use, such as by way of filtration. It is preferred that no solid particulates are present in the compositions of the present invention. However, in certain embodiments a
30 relatively small level (less than 2% by weight of the composition) of small solid particulates of less than 0.1mm in size (measured as the largest external dimension) are present, and where necessary any larger particulates can be

filtered out using an appropriately graded filter. In other embodiments the flavouring comprises one or both of liquid, and/or semi-liquid, miscible and/or emulsifiable with one or more of the components in the composition, when mixed therewith. In still further embodiments the flavouring comprises two or more of solids, liquid, semi-solid and semi-liquid such as paste or viscous liquid. It will be appreciated that a combination of two or more of such flavourings can be used within a composition.

The flavouring should be free or substantially free of any insoluble solids or particulates when mixed with the other components at typical household and kitchen temperatures, which in combination with all the other solid-free or substantially solid-free components in the compositions helps to ensure that the spray nozzle of the dispensing mechanism used to spray the compositions does not become blocked by the compositions, thus enabling fine and consistent sprays of the compositions to be dispensed. It is preferred that the compositions of the present invention are completely free of any grains or solid particles, to obviate the possibility of these blocking the orifice through which the composition is sprayed. However, in practice, typical spray orifices are often not less than 0.1mm in diameter and so the composition of the present invention can be substantially free of solid particulates in that a small amount of particulate can be present, but these would be less than 0.1mm in size, i.e. their largest external dimension would be less than 0.1mm. Typically any solid particulates present would be less than 2% of the total weight of the composition.

In certain embodiments the flavouring comprises one or more of a natural, artificial or nature identical flavouring, either alone or as a blend. The flavouring can comprise one or more of a spice, spice extract, spice derivative, herb, herb extract, herb derivative, seasoning or aromatic, soya sauce, yeast extract, hydrogenated vegetable protein. The flavouring may comprise one or more of an oleoresin, distillate, essence and essential oil from or resembling spices, herbs or other flavourings and/or seasonings, such

as those associated with oriental food, like (but not only) one or more of ginger, garlic, lemon grass, five star anise, clove, sesame, onion, cinnamon, chilli, cayenne, pepper.

5 The flavouring comprises up to 20% by weight of the composition, and in preferred embodiments between 0.1% and 8%. Within the context of the present specification the flavouring does not include other components or ingredients that may have a flavour but that are not explicitly described herein as being a part of or comprising the flavouring, eg salt, sugar, acidity
10 component.

 The oil component comprises up to 95% by weight of the composition, although the presence of the oil component in amounts between 6% and 60% by weight of the composition are found particularly useful.

15

 The oil component comprises one or more of vegetable oil, olive oil, rapeseed oil, ground nut oil, grape seed oil, safflower oil, sunflower oil, cotton seed oil or any other sprayable plant derived edible oil. The oil component may comprise oil from or derived from non-plant sources such as animal,
20 marine, fish, dairy, algal and microalgal. In certain embodiments the oil component comprises refined oil(s) and/or medium chain triglycerides, mineral derived oils, fats and oils such as one or more of hydrogenated, palm and/or coconut oil dissolved in a liquid oil of the oil component (particularly at temperatures between 5°C and 50°C).

25

 In certain embodiments the composition comprises an aqueous component. The aqueous component is present in amounts up to 90% by weight of the overall composition, but amounts in the range 10% to 90% are found particularly useful. The aqueous component can be water or other
30 predominantly aqueous substances. In certain embodiments the aqueous component may comprise water and one or more of soya sauce, alcohol,

flavouring, and other generally soluble ingredients in the composition such as but not only soluble acid vinegars, lemon juice, fruit juice.

5 The non-stick component is present in an amount up to 10% by weight of the overall composition. Non-stick component present in amounts 1% to 8% have however been found to be particularly preferred.

10 Non-stick components, according to preferred embodiments of the present invention, comprise one or more lecithins, such as soya lecithin, rapeseed lecithin, sunflower lecithin, rice lecithin, oil seed lecithin, hydroxylated lecithin, hydrolysed lecithin and chemical, physical, microbial, enzymatic modifications and derivatives thereof. The lecithin can be liquid, non-liquid, de-oiled and/or powdered. Lecithin may also act as an emulsifier within the composition to further stabilise the composition emulsion. In other
15 embodiments, other suitable sprayable non-stick agents can be used.

In certain embodiments the pH of the composition and more particularly the aqueous component, of the present invention is acidic. Preferred compositions of the invention have a pH of no more than about 4.5
20 and most desirably a pH of approximately 3.9 at 20°C. It will be appreciated however that lower levels of acidity can be used subject to palatability and suitability for consumption. At these levels of acidity, the compositions have self-preserving properties, providing an environment in which pathogens, in particular pathogenic micro-organisms such as clostridium botulinum, cannot
25 survive and proliferate.

It is generally the water component that exhibits vulnerability to the growth of pathogenic micro-organisms within the compositions. The pH levels of the compositions of the present invention limit or prevent the multiplication
30 of pathogenic micro-organisms in the water component, thus mitigating the need for the compositions to be subjected to conventional preservation processes such as irradiation, pasteurisation, heat sterilisation and suchlike.

This renders the manufacturing process of the compositions of the present invention relatively simple, inexpensive and generally more acceptable to the consumer.

5 In particular embodiments, the compositions comprise an acidic component, such as one or more of acetic acid, vinegar, or other edible acids or acidic compositions, in appropriate amounts to give the respective composition the overall desired acidic conditions or pH.

10 The acidic component comprises up to about 10% by weight of the composition, although preferred embodiments contain between 0.1% and 4% by weight.

15 In certain embodiments a pH buffering substance is used, such as sodium acetate.

20 In further embodiments of the present invention, the compositions comprise up to 20% by weight and in preferred embodiments between 5% and 15% by weight of a salt component. The salt component would generally comprise common or culinary salt, including one or more of sodium chloride and potassium chloride.

25 The amount of salt component in the aqueous component is less than about 20%. At levels above this the salt component may begin to crystallize out of solution to a significant degree. In certain embodiments the amount of salt component in the aqueous component is less than about 10% by weight of the aqueous component.

30 The presence of a salt component at these levels will further help to preserve the compositions, as well as adding to the palatability of the compositions.

In certain embodiments, some or all of the salt component is provided within a soya sauce component of the composition. The compositions according to these embodiments may comprise up to 50% by weight of soya sauce, although most preferred embodiments comprise soya sauce present in amounts between 5% and 15% by weight. Soya sauce typically comprises in the region of 18% to 20% salt, therefore for compositions with more than about 5% salt component, salt component in addition to that provided by the soya sauce will generally be provided at suitable levels to achieve the desired salt component content in the overall composition. The soya sauce will also act as a flavouring for the composition adding to the presence of other flavouring(s). The soya sauce component mainly comprises soya sauce sourced from traditional fermentation both made with and without wheat or may be imitation soya sauce made with autolysed yeast or hydrolysed proteins in substitute or part substitute of the autolysed proteins in traditionally made soya sauce. The soya sauce can also be a reduced salt soya sauce in certain embodiments.

In certain embodiments of the invention the composition comprises a sugar component comprising one or more of monosaccharide, disaccharide and polysaccharide or their compounds and derivatives. The sugar component can be provided in full or in part by one or more of soya sauce, honey, fruit juice, molasses.

The presence of the sugar component helps to preserve the composition, in particular the aqueous component thereof.

In certain embodiments the composition comprises alcohol up to about 10% by weight of the overall composition. In particular embodiments alcohol is present at between 2% and 8% by weight. The alcohol generally assists in preserving such compositions, in particular the aqueous component.

In embodiments comprising two or more of the sugar component, acidic component, salt component and alcohol as described herein, the preservative effects of these generally combine to preserve the compositions. It has been generally found that the preservative effects are at least additive.

5 This means that the relative amounts of these components can be selected and controlled to provide the composition with the desired preservative characteristics as well as desired organoleptic properties.

The salt, sugar, acid and alcohol components will also add certain
10 flavour and taste qualities to the compositions.

In certain embodiments an emulsifier is provided in amounts up to 10% by weight of the composition, although compositions comprising emulsifier present in amounts 0.1% to 5% find particular application in accordance with
15 the present invention.

Preferred emulsifiers comprise a protein emulsifier, such as one or more of soya protein, milk protein, pea protein and derivatives thereof.

20 Alternatively or in addition, the emulsifier comprises one or more of a sucrose ester, lecithin, monoglyceride, diglyceride and/or functional or other derivatives thereof.

The emulsifier generally acts alongside any emulsifying action of
25 lecithin that is otherwise present as a non-stick component.

In certain embodiments, a stabiliser is present in amounts up to about 2% by weight of the overall composition, although preferred compositions comprise between 0.1% and 1% by weight of a stabiliser.
30

In preferred embodiments, the stabiliser comprises one or more of xanthan gum, carrageenan gum, other hydrocolloid or other stabilising

systems or thickeners such as one or more of pectin, modified pectin/calcium salt combinations.

5 A particular advantage of the acidic compositions of the present invention is that it has been found that despite the acidic pH ranges stated above, the activity of the lecithin as a non-stick agent is not significantly impaired. Although not wishing to be bound by theory, it is believed that the specific combination of the lecithin with protein emulsifier and xanthan gum (stabiliser) in the specified relative amounts as set out herein helps to
10 strengthen and/or preserve the emulsifying action of the lecithin.

Furthermore, the particular formulations of the compositions of the present invention also help to maintain the homogenous nature of the emulsion, despite the relatively low pH values. This is a surprising
15 development because at such acidic pH values it would generally be expected that the lecithin would degrade for this purpose and coagulate, but this does not in fact occur to any sufficient degree in compositions of the present invention. In particular, the presence of pectin and/or sucrose ester and/or their derivatives are believed to have a protective effect on soluble protein
20 thus facilitating stability at these acidic pHs.

Compositions of the present invention thus retain a generally homogeneous distribution of the constituents and maintain their sprayable properties over significant periods of time to provide them with good storage
25 properties when stored at temperatures of between 20°C and 30°C. Compositions of the present invention generally have a shelf life of six to twelve months.

The compositions of the present invention are sprayable at
30 temperatures between at least 10°C and 50°C, temperatures generally considered within the broader range of typical household or kitchen temperatures. At these temperatures the compositions are substantially

wholly or wholly devoid of particulates that would otherwise act to block or restrict the spraying mechanism. At perhaps more usual room temperature range of between 10°C and 40°C, the viscosity of compositions are readily sprayable using finger actuated, mechanical spray pump dispensers, aerosol
5 spray dispensers, trigger pump spray dispensers. The spray dispenser can comprise its own propellant source or may depend upon a separate source of propellant.

Further components may be provided within the compositions in the
10 present invention as desired, such as one or more of preservatives (such as but not only sulphur dioxide and/or its compounds, anti-oxidants (such as but not only, tocopherol, Vitamin C and/or compounds), stabilisers, thickeners, colourants, chelating agent (such as but not only EDTA, its compounds, salts and/or derivatives).

15

The colourant or colourants can be added to provide the composition with the desired overall colour. For example, yellow colourant may be used to give the composition an overall yellowish appearance, such as to emulate the colour of seed oils, such as sunflower oil or lemon grass or such like.
20 Colourant may be added to give the composition a colour that suggests or reinforces to a consumer the nature or a characteristic of the composition, such as reddish colour to suggest heat or that it contains chilli, paprika, pepper etc, green colouration to suggest particular herb content or extra virgin olive oil. Caramel, modified caramels such as, but not only ammonia
25 caramels, and/or roasted malt extract can be used to emulate or reinforce the colour of soya sauce.

30

The following is just one example of a composition according to the present invention.

Component	% by weight of composition
Rapeseed oil	51.69
Water	32.89
Lecithin (liquid)	3.62
Caramel (wheat-free)	1.14
Hydrolysed vegetable protein (liquid soya 18% to 25% salt)	2.65
Spice blend extract flavouring (liquid)	0.96
Tocopherol extract (antioxidant)	0.05
Acetic acid (80%)	0.77
Common/culinary salt	4.19
Sugar (white)	1.44
Xanthan gum (80 mesh)	0.12
Pea protein	0.48

This composition has a viscosity of between 850 and 1350 centipoise
 5 (0.85 to 1.35 PaS) at 20°C. For the avoidance of doubt, all measurements
 that are subject to prevailing pressure conditions are to be taken and
 measured at average sea level atmospheric pressure (1 Bar). This
 composition has a pH of 3.4 to 3.8 at 20°C, which provides the composition
 with good preservation, particularly against spoilage by undesirable
 10 microorganisms. Also, the presence of the acetic acid, salt and sugar
 components combine together to help preserve the composition, obviating the
 need for the composition to be subjected to additional preservation techniques
 such as pasteurisation and sterilisation.

15 The food compositions of the present invention are both self-preserving
 and relatively stable and thus provide convenient compositions for use in
 cooking and/or the general application to food stuffs to prevent sticking, to
 moisten and/or to add flavouring. The compositions provide the dual
 properties of a reduced or relatively low oil/fat non-stick cooking spray and a
 20 flavouring that enables quick and convenient cooking and preparation of
 Oriental-style foods. The compositions are also suitable for transportation
 and distribution at ambient temperatures, not requiring refrigeration.

The sprayable viscosity of compositions of the present invention also help to provide a convenient means of dispensing the compositions, and enables predetermined amounts of the composition to be dispatched with known calorific content. The compositions can be dispensed in relatively small and controlled quantities, which means the calorific content of each dispensed amount can be controllably small thus offering the advantage that the compositions can be used to enable cooking and food preparation using relatively small amounts of oils and fats (compared to using conventional oils and fats). This can help reduce oil/fat intake and assist in weight control and enable generally healthier cooking, particularly compared to conventional stir-frying, roasting and frying.

Further, the provision of the flavouring in forms that do not present any solids or particulates, or that only present particulates of less than 0.1mm at their largest external dimension and which constitute less than 2% of the entire composition by weight, into the composition at typical household or kitchen temperatures (once mixed or dissolved) ensures that the compositions do not present a tendency to block or otherwise hinder the spray dispensing mechanism through which they are dispersed, which generally comprises very small, often sub-millimetre openings. A method comprising spraying a predetermined amount of composition of the present invention with known calorific content comprises an aspect of the present invention.

The invention also relates to a dispenser containing a bulk supply of sprayable edible composition as described above, the dispenser being arranged to spray upon actuation a predetermined amount of composition with a known calorific content.

The method of dispensing fixed amounts of the composition will be dependant upon the dispensing mechanism of the dispenser. For dispensers that dispense fixed amounts upon each actuation, then the amount of product

dispensed will determine the calorific content upon each actuation. Typical calorific content of compositions of the present invention are less than 2 kcal per 0.2 ml, a typical volume that can be dispensed using hand-held spray devices described herein. For continuous spray mechanisms, the consumer
5 can calculate the calorific content of the composition dispensed according to the time over which composition is sprayed from the dispenser. The dispenser will preferably carry information to the consumer to enable them to make appropriate calculations in this regard.

10 Also, the ability to dispense known amounts of composition enables a user to control the amount of flavouring dispensed and thus the intensity of the flavouring dispensed on the food.

15 Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A sprayable edible food composition comprising an oil component, a
5 non-stick component, and a flavouring that is soluble in, miscible with and/or
emulsifiable with one or more of the aforesaid components to present no or
substantially no solid particulates in the composition.
2. A sprayable edible food composition as claimed in claim 1, in which the
10 flavouring comprises solids that are dissolved in one or more of the
components.
3. A sprayable edible food composition as claimed in claim 2, in which the
flavouring presents substantially no solid particulates in that any particulates
15 that are present are less than 0.1mm in external dimension and constitute
less than 2% by weight of the composition.
4. A sprayable edible food composition as claimed in any preceding
claim, in which the flavouring comprises liquid and/or semi-liquid, miscible
20 and/or emulsified with one or more of the components in the composition.
5. A sprayable edible food composition as claimed in any preceding
claim, in which the flavouring imparts a flavour and/or smell to the composition
and/or to food to which it is applied of or resembling oriental food, seasonings
25 and/or flavourings.
6. A sprayable edible food composition as claimed in any preceding
claim, in which the flavouring comprises one or more of a natural, artificial or
nature identical flavouring, either alone or as a blend.
30
7. A sprayable edible food composition as claimed in any preceding
claim, in which the flavouring comprises one or more of a spice, spice extract,

spice derivative, herb, herb extract, herb derivative, seasoning, aromatic, soya sauce, yeast extract, hydrogenated vegetable protein.

5 8. A sprayable edible food composition as claimed in any preceding claim, in which the flavouring comprises one or more of an oleoresin, distillate, essence and/or essential oil derived from or resembling spices, herbs, seasonings or other flavourings.

10 9. A sprayable edible food composition as claimed in any preceding claim, in which the flavouring comprises up to 20% by weight of the composition.

15 10. A sprayable edible food composition as claimed in any preceding claim, in which the flavouring comprises between 0.1% and 8% by weight.

11. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises up to 95% by weight of oil component.

20 12. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises between 6% and 60% of oil component, by weight.

25 13. A sprayable edible food composition as claimed in any preceding claim, in which the oil component comprises one or more of vegetable oil, olive oil, rapeseed oil, ground nut oil, grape seed oil, safflower oil, sunflower oil, cotton seed oil or any other sprayable plant derived edible oil.

30 14. A sprayable edible food composition as claimed in any preceding claim, in which the oil component comprises refined oil(s) and/or medium chain triglycerides.

15. A sprayable edible food composition as claimed in any preceding claim, in which the oil component includes dissolved fats, such as one or more of hydrogenated oils and fats, palm oil, coconut oil, at temperatures generally considered typical or usual household or kitchen
5 temperatures (as defined herein).

16. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises an aqueous component.

10 17. A sprayable edible food composition as claimed in claim 16, in which the aqueous component comprises up to 90% by weight of the composition.

18. A sprayable edible food composition as claimed in claim 16 or claim 17, in which the aqueous component comprises between 10% and 90% by
15 weight of the composition.

19. A sprayable edible food composition as claimed in any of claims 16 to 18, in which the aqueous component is water.

20 20. A sprayable edible food composition as claimed in any of claims 16 to 19, in which the aqueous component comprises between 10% and 90% by weight of the composition.

21. A sprayable edible food composition as claimed in any of claims 16 to
25 20, in which the aqueous component comprises a composition comprised predominantly of water.

22. A sprayable edible food composition as claimed in any of claims 16 to 21, in which the aqueous component comprises water and one or more of soy
30 sauce, alcohol, flavouring.

23. A sprayable edible food composition as claimed in any preceding claim, in which the composition has an acidic pH at 20°C.

24. A sprayable edible food composition as claimed in any preceding claim, in which the composition has a pH of about 4.5 or less at 20°C.

5 25. A sprayable edible food composition as claimed in any preceding claim, in which the composition has a pH of approximately 3.9 at 20°C.

26. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises an acidic component.

10

27. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises one or more of vinegar, acetic acid and other edible acids or acidulants in appropriate amounts to render the composition acidic.

15

28. A sprayable edible food composition as claimed in Claim 26 or Claim 27, in which the acidic component comprises up to about 10% by weight of the composition.

20 29. A sprayable edible food composition as claimed in any of Claims 26 to 28, in which the acidic component comprises between 0.1% and 4% by weight of the composition.

25 30. A sprayable edible food composition as claimed in any preceding claim, in which a pH buffering substance is provided.

31. A sprayable edible food composition as claimed in any preceding claim, in which the non-stick component comprises lecithin.

30 32. A sprayable edible food composition as claimed in any preceding claim, in which the non-stick component comprises soya lecithin and/or modifications and derivatives thereof.

33. A sprayable edible food composition as claimed in any preceding claim, in which the non-stick component comprises up to about 10% by weight of the composition.

5 34. A sprayable edible food composition as claimed in any preceding claim, in which the non-stick component comprises between about 1% to 8% by weight of the composition.

10 35. A sprayable edible food composition as claimed in any preceding claim, in which the non-stick component is an emulsifier.

36. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises up to 30% by weight of a salt component.

15

37. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises between 15% and 25% by weight of a salt component.

20 38. A sprayable edible food composition as claimed in Claim 36 or Claim 37, in which the salt component comprises common or culinary salt.

25 39. A sprayable edible food composition as claimed in any of Claims 36 to 38, in which the salt component comprises one or more of sodium chloride and potassium chloride.

40. A sprayable edible food composition as claimed in any of Claims 36 to 39, in which the aqueous component comprises up to about 20% by weight of salt component.

30

41. A sprayable edible food composition as claimed in any of Claims 36 to 50, in which the aqueous component comprises less than about 10% by weight of salt component.

42. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises soya sauce.

5 43. A sprayable edible food composition as claimed in Claim 42 when dependent on any of Claims 36 to 41, in which the salt component is provided, at least in part, by the soya sauce in the composition.

10 44. A sprayable edible food composition as claimed in Claim 42 or Claim 43, in which the composition comprises up to 50% by weight of soya sauce.

45. A sprayable edible food composition as claimed in any of Claims 42 to 44, in which the composition comprises between 5% and 15% by weight of soya sauce.

15

46. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises a sugar component.

20 47. A sprayable edible food composition as claimed in Claim 46, in which the sugar component comprises one or more of monosaccharide, disaccharide, polysaccharide, and their compounds and/or derivatives.

25 48. A sprayable edible food composition as claimed in Claim 46 or Claim 47, when dependent on any of Claims 42 to 45, in which some or all of the sugar component is comprised in one or more of soya sauce, honey, fruit juice, molasses.

30 49. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises alcohol up to 10% by weight of the composition.

50. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises between 2% and 8% alcohol by weight of the composition.

5 51. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises an emulsifier.

52. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises a protein emulsifier.

10

53. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises one or more of soya protein, milk protein, pea protein and derivatives thereof.

15 54. A sprayable edible food composition as claimed in any of Claims 51 to 53, in which the emulsifier comprises up to 10% by weight of the composition.

55. A sprayable edible food composition as claimed in any of Claims 51 to 54, in which the emulsifier comprises about 0.1% to 5% by weight of the
20 composition.

56. A sprayable edible food composition as claimed in any of Claims 51 to 55, in which the emulsifier comprises one or more of a sucrose ester, lecithin, mono and diglycerides, functional or other derivatives of one or more of these.

25

57. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises a stabiliser.

58. A sprayable edible food composition as claimed in Claim 57, in which
30 the stabiliser comprises one or more of xanthan gum, pectin, hydrocolloid, pectin/calcium salt combinations and/or derivatives of any of the aforesaid and/or other stabilising systems or thickeners.

59. A sprayable edible food composition as claimed in Claim 57 or Claim 58, in which the stabiliser comprises up to 2% by weight of the composition.

5 60. A sprayable edible food composition as claimed in any of Claims 57 to 59, in which the stabiliser comprises 0.1% to 1% by weight of the composition.

61. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises other components including one or
10 more of preservatives, antioxidants, flavourings, colourants (natural and/or artificial), hydrolysed protein, yeast extract, chelating agent.

62. A sprayable edible food composition as claimed in any preceding claim, in which the composition comprises a generally homogeneous
15 emulsion.

63. A sprayable edible food composition as claimed in any preceding claim, in which the composition is of sprayable viscosity at temperatures generally considered typical or usual household or kitchen temperatures.

20 64. A sprayable edible food composition as claimed in any preceding claim, in which the composition is of sprayable viscosity at temperatures between 5°C and 50°C.

25 65. A sprayable edible food composition as claimed in any preceding claim, in which the composition is of sprayable viscosity at temperatures between 10°C and 40°C.

30 66. A sprayable edible food composition as claimed in any of Claims 63 to 65, in which the composition is sprayable using a hand-held spray device.

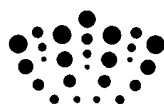
67. A sprayable edible food composition as claimed in any of Claims 63 to 66, in which the composition is sprayable using a mechanical, finger actuated

spray pump dispenser, aerosol spray dispenser, spray apparatus
dispensers that use liquefied or pressurised gas as propellant and/or a trigger
actuated pump dispenser.

- 5 68. A method of dispensing a sprayable food composition as defined in any
of Claims 1 to 67, the method comprising spraying a predetermined amount of
composition with a known calorific content.

- 10 69. A dispenser containing a bulk supply of sprayable food composition as
defined in any of Claims 1 to 67, the dispenser being arranged to spray upon
actuation, a predetermined amount of composition with a known calorific
content.

- 15 70. Any novel subject matter or combination including novel subject matter
disclosed herein, whether or not within the scope of or relating to the same
invention as any of the preceding claims.



Application No: GB1017723.6

Examiner: Kathryn Orme

Claims searched: 1-69

Date of search: 15 February 2011

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1, 4-19, 21-22, 26, 31-36, 38-40, 51, 54-56, 61-69 at least	US 5374434 A (CREATIVE PROD INC) see especially examples 6 and 10
X,P	1, 4-9, 11-19, 21-23, 26-28, 31-35, 49-55 and 61-69 at least	GB 2462963 A (ST GILES FOODS) see especially claims 30 and 36
X	1-9, 11-18, 20-22, 31-33, 35-36, 38-40, 42-48, 51, 54-56 and 61-69 at least	US 4794015 A (ASAHI DENKA) see especially column 1 lines 29-32 and example 2
X	1, 4-9, 12-19, 21-22, 31-35, 55-56 and 61-19 at least	US 2008/044523 A1 (LEONARD) see especially paragraphs 0063 and 0083-0088
X	1-9, 12-22, 26, 28-29, 31-36, 38-41, 51 and 54-69 at least	US 6113970 A (LIPTON DIVISION OF CONOPCO) see especially example 1
X	1-9, 11-19, 21-22, 31-36, 38-41, 51, 53-56 and 61-69 at least	US 2004/109930 A1 (LIPTON DIVISION OF CONOPCO) see especially paragraphs 0028-29, 0035 and 0036
X	1, 8-9, 12-19, 21-22, 31-33, 35, 51, 56 and 61-69 at least	http://www.ciao.co.uk/Frylight_Better_than_Butter_Oil_Spray_Review_5393803 [viewed 15/02/2011]

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

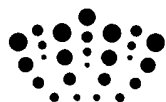
Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X:

Worldwide search of patent documents classified in the following areas of the IPC

A23D

The following online and other databases have been used in the preparation of this search report



WPI, EPODOC and Internet

International Classification:

Subclass	Subgroup	Valid From
A23D	0007/01	01/01/2006