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(54) **Title**: COMPOSITION

(57) **Abstract**: A beverage flavouring composition is provided for dilution of one volume of the composition with about 35 to about 200 volumes of liquid, wherein the composition has a pH of between about 3.5 and about 3.7, and a shelf life of at least 3 months.

COMPOSITION

The present invention relates to beverage flavouring compositions suitable for dilution to provide flavoured beverages.

Beverage flavouring compositions may be provided as concentrates that may be diluted by the consumer before drinking the beverage. The beverage flavouring composition may be intended to add to or enhance the flavour of an already flavoured beverage, for example coffee.

These concentrates are often provided as a liquid which is intended to be diluted with about one part concentrate and 4 to 10 parts water, or other drink, to provide a palatable beverage. The concentrates also may comprise added sugar, such as sucrose or glucose, or artificial sweeteners, usually saccharin or aspartame.

Consumers enjoy beverages that comprise real or natural flavours because they like the taste and because they are more natural and healthy than artificially flavoured beverages.

It would be advantageous to provide a liquid beverage flavouring composition, containing real or natural flavours, that is more concentrated than those beverage flavouring concentrates currently for sale because it would allow a smaller amount of the composition to be used. A more concentrated beverage flavouring composition could also be sold in smaller bottles or package sizes which are lighter and easier to transport, saving transportation costs and also storage space in warehouses and supermarkets. Smaller bottles or package sizes would also provide advantages for the consumer because they are easier to take home and store after purchase, and they are also more portable so that the consumer can easily carry them around, and they also create less waste.

A problem with providing concentrated beverage flavouring compositions is that steps must be taken to avoid spoilage to ensure an adequate shelf-life (both packaged shelf life and shelf life after opening). Physical approaches to controlling shelf life (for example pasteurization, irradiation, ultrasound) or the use of artificial preservatives have disadvantages. Physical techniques require energy and extra process steps which

can significantly increase production costs. The use of preservatives is contrary to current trends in which consumers prefer lower levels of added preservatives, particularly in products to be marketed as 'health' products or 'natural' products. An aim of the present invention is therefore to provide a beverage flavouring composition with a good shelf life with reduced or no preservative.

The present invention provides a concentrated beverage flavouring composition that can be diluted with about 35 to about 200 volumes of liquid to provide a palatable beverage. Preferably the composition has a packaged shelf life of at least about 3 months. Preferably the packaged shelf life is at least about 4, 5 or 6 months, and may be as much as at least about 9 months, 12 months or more. Preferably, after opening the package, the beverage flavouring composition has a shelf life of at least about 24 hours, preferably longer, for example at least about 48 hours, 1 week, 2 weeks or at least about one month or more. The packaged and opened shelf lives are obtained on storage at room temperature.

The beverage flavouring composition of the invention may have a pH below about 3.7 but high enough to prevent degradation of the flavouring agents. The pH of a composition of the invention may be between about 3.5 and about pH 3.7, and may be above pH 3.5, for example may be at least about pH 3.6.

As used herein a beverage flavouring composition is a composition that comprises a key flavouring agent which may be a natural flavour, extract or essence, but also has at least one other ingredient, for example, one or more of water, sugar, artificial sweetener, high intensity sweetener, colouring, non-key flavouring, citric acid, ascorbic acid, malic acid, phosphoric acid, acidity regulator, preservative, vitamin, mineral, thickener, flavour enhancer and/or other ingredient common in the food and beverage industry.

As used herein a natural flavour, extract or essence preferably means material derived wholly from a flavour source and is not synthetic.

The key flavour of the present invention may be derived from any suitable flavoured material, for example (but not limited to), vanilla, caramel, hazelnut, ginger, mint, almond (to provide an amaretto beverage flavouring composition) or another nut.

Alternatively the key flavour may be a fruit or vegetable flavour. In one embodiment the key flavour is preferably not a fruit flavour.

The key flavour may, in an alternative embodiment, be a synthetic flavour that is chemically synthesised.

As used herein a beverage is a composition comprising a beverage flavouring composition and other diluting ingredients to make it suitable for or intended for consumption by a consumer. For example, a beverage may be a quantity of a beverage flavouring composition diluted with a suitable liquid, for example, water.

A beverage may be made by diluting a beverage flavouring composition having a key flavour with a suitable quantity of a liquid that does not comprise the key flavour, for example, still water, sparkling water, soda water, tonic water, coffee, tea, milk, soda, cola, iced drinks, herbal tea, black tea, milkshake, beer, a spirit, a cocktail, hot chocolate or cocoa.

It is advantageous to provide a beverage flavouring composition wherein one volume of the beverage flavouring composition may be diluted with about 35 to about 200 volumes of liquid because only a small volume of beverage flavouring composition may be required to provide a flavour containing beverage. By using such a high dilution factor only a very small amount of beverage flavouring composition may be needed, this is particularly important if you are adding the composition to a hot beverage and to add too much of a cold beverage flavouring composition would reduce the temperature of the beverage.

A beverage flavouring composition of the present invention may be described as a super-concentrated beverage flavouring composition because a small amount of it may be diluted with a large amount of liquid to provide a beverage with the desired amount of flavour.

In the present invention, knowing the percentage of key flavouring in a given volume of the beverage flavouring composition allows the user to calculate the amount of key flavouring in a beverage made by diluting the composition if the amount of additional liquid that is added to the beverage flavouring composition is known.

In one embodiment one volume of beverage flavouring composition may be diluted with about 35 to about 200 volumes, about 35 to about 100, preferably, about 35 to about 90 volumes, preferably about 35 to about 80 volumes, preferably about 50 to about 80 volumes of a liquid that does not comprise the key flavouring. Preferably one volume of beverage flavouring composition is intended to be diluted with about 35 volumes or more, about 40 volumes or more, about 50 volumes or more, about 55 volumes or more, about 60 volumes or more, about 65 volumes or more, about 70 volumes or more, about 75 volumes or more, about 80 volumes or more, about 85 volumes or more, about 90 volumes or more of diluent, such as still or sparkling water. As discussed above the diluent may be any suitable potable liquid, for example, still water, sparkling water, soda water, tonic water, coffee, tea, milk, soda, cola, iced drinks, herbal tea, black tea, milkshake, beer, a spirit, a cocktail, hot chocolate or cocoa.

The beverage flavouring composition may comprise key flavouring from more than one source. This is advantageous because it provides a larger range of flavours of beverages than is available from compositions comprising a single type of key flavour.

The beverage flavouring composition may comprise one or more artificial sweeteners and/or high intensity sweeteners. This is advantageous because the same sweetness may be provided with less sugar. This is also advantageous because, for very concentrated beverage flavouring compositions, it is difficult to dissolve enough sugar in the composition to give the required sweetness when the composition is diluted to make a beverage.

The beverage flavouring composition may comprise acesulfame K and/or sucralose. This is advantageous because beverage flavouring compositions may be acidic, and the inventors have found that acesulfame K and sucralose are acid stable sweeteners which are stable in beverage flavouring compositions of the invention. Acesulfame K and sucralose provide both the advantage of providing sweetness to the beverage flavouring e composition and being stable in acid conditions in the beverage flavouring composition.

In a beverage flavouring composition of the invention comprising a high intensity sweetener the high intensity sweetener may be neotame, cyclamate, alitame, steviside/stevia, sucralose and/or acesulfame K. The high intensity sweeteners in the beverage flavouring composition may be sucralose and/or acesulfame K.

Alternatively or additionally, the beverage flavouring compositions of the invention may comprise natural caramel syrup as a sweetener. A beverage flavouring composition may in one embodiment not comprise any other high intensity sweeteners except sucralose and/or acesulfame K and/or natural caramel syrup.

The beverage flavouring composition may comprise about 3g to about 50g per litre, preferably about 3g to about 30g per litre, preferably about 5g to about 20g per litre, of high intensity sweetener, such as sucralose or acesulfame K. The beverage flavouring composition may also, or alternatively, comprise about 3g to about 50 g per litre acesulfame K. In one embodiment a beverage flavouring composition may comprise about 3g to about 50 g per litre of a combination of acesulfame K and sucralose. Alternatively, or additionally, the beverage flavouring compositions of the invention may comprise natural caramel syrup, the natural caramel syrup may be included at from about 1g to about 50g per litre.

In an alternative embodiment, sweeteners are not included in the beverage flavouring composition and any sweetness required may be provided by the diluent to which the composition is added.

The beverage flavouring composition of some embodiments may comprise a buffer. In other embodiments, the beverage flavouring composition comprises no buffer.

The beverage flavouring composition may comprise no added sugar. This is advantageous because many consumers wish to reduce the amount of sugar they consume and drinking beverages that do not comprise added sugar can be helpful in reducing the amount of sugar consumed. In some embodiments, the beverage flavouring composition contains zero, or substantially zero calories.

In one embodiment a beverage flavouring composition may further comprise one or more components selected from: natural or artificial colouring, acidity regulator, non-key flavourings, preservatives, citric acid, acidity regulators and water.

Preservatives may include sorbates, benzoates and sulphur dioxide. Acidulants may include tartaric acid, phosphoric acid, lactic acid, acetic acid, fumaric acid and ascorbic acid.

In one embodiment the beverage flavouring composition does not comprise any preservatives.

The beverage flavouring composition may comprise no artificial colours.

The beverage flavouring composition may comprise no, or substantially no alcohol, preferably the composition comprising or substantially no ethanol. The beverage flavouring composition may comprise less than about 5%, less than about 4%, less than about 3%, less than about 2%, less than about 1.5%, less than about 1.4%, less than about 1.3, less than about 1.2%, less than about 1.1%, less than about 1%, less than about 0.9%, less than about 0.8%, less than about 0.7%, less than about 0.6%, less than about 0.5% by weight or volume of ethanol. Preferably the beverage flavouring composition comprises less than 1%, preferably less than 0.5% ethanol. The beverage flavouring composition may be Halal and may be used to create a Halal beverage.

In some embodiments, the beverage flavouring composition may comprise propylene glycol. The beverage flavouring composition may comprise between about 0.5% and 5% propylene glycol, for example about 1.0%, about 1.5%, about 2.0%, about 2.5%, about 3.0%, about 3.5%, about 4.0%, about 4.5% or about 5.0%. In preferred embodiments the beverage flavouring composition may comprise about 1.0 to about 3% propylene glycol, for example about 2.1%, about 2.2%, about 2.3%, about 2.4%, 2.5% or more up to about 3%. In other embodiments the beverage flavouring composition may comprise about 2.0% to about 3.0% propylene glycol, for example about 2,2%, about 2.3%, about 2.4%, about 2.5% about 2.6%, about 2.7%, about 2.8%, about 2.9% or about 3.0%.

In some embodiments, the beverage flavouring composition may comprise at least about 80%, 85%, 90% water, e.g. at least about 92%, 93%, or 94% or more water. Preferably, the beverage flavouring composition will contain no water activity reducing agent.

In some embodiments, the beverage flavouring composition may have a viscosity of between about 0.8 mPa.s and about 5 mPa.s.

In some embodiments, in the beverage flavouring composition the flavour is provided by a key natural flavouring, extract or essence, present at about 0.05% to about 0.5% v/v. The total flavouring content may be between about 2% and 4% w/w or v/v.

In one embodiment a beverage may be prepared by diluting the beverage flavouring composition described above with a potable liquid. The potable liquid may be still water, sparkling water, soda water, tonic water, coffee, tea, milk, soda, cola, iced drinks, herbal tea, black tea, milkshake, beer, a cocktail, hot chocolate or cocoa, or any other potable liquid.

In another embodiment a flavoured beverage may be prepared by adding the beverage flavouring composition described to a potable liquid. The potable liquid may be still water, sparkling water, soda water, tonic water, coffee, tea, milk, soda, cola, iced drinks, herbal tea, black tea, milkshake, beer, a spirit, a cocktail, hot chocolate or cocoa, or any other potable liquid.

In one embodiment a beverage flavouring composition may be packaged in a container comprising about 5 ml to about 1000 ml beverage flavouring composition. In one embodiment a beverage flavouring composition may be packaged in a dosing bottle capable of providing a dose comprising a suitable quantity of beverage flavouring composition for one serving of flavoured beverage.

In another aspect the present invention may provide a method of making a beverage comprising the step of admixing a beverage flavouring composition according to the present invention with a potable liquid.

The method may comprise admixing a beverage flavouring composition according to the present invention with an edible/potable liquid that does not comprise the key flavour.

In another aspect the present invention provides a beverage comprising a beverage flavouring composition according to the present invention or a beverage provided by a method of making a beverage according to the present invention.

The beverage may be chilled below ambient temperature before consumption. The beverage may be heated above ambient temperature before consumption.

In another aspect, the present invention provides a packaged beverage flavouring composition comprising a container and a beverage flavouring composition according to the invention within the container. The packaged beverage flavouring composition may comprise a single serving of beverage flavouring composition. The packaged beverage flavouring composition may comprise more than one serving of the beverage flavouring composition. The packaged beverage flavouring composition may comprise a dosing measure to aid the measurement of a serving of beverage flavouring composition. The packaged beverage flavouring composition may comprise more than one serving of the beverage flavouring composition in a dosing packaging capable of being actuated to provide a suitable quantity of the beverage flavouring composition for a single serving.

The skilled man will appreciate that preferred features of any one embodiment and/or aspect of the invention may be applied to all other embodiments and/or aspects of the invention.

The present invention will be further described in more detail, by way of example only, with reference to the following figures in which:

Examples

Caramel beverage flavouring composition

The following caramel beverage flavouring composition may be diluted between 1:50 and 1:100, preferably about 1:75 to produce a caramel flavoured beverage.

Ingredient	
ethanol	0%
Propylene glycol	2.36%
Key flavouring	0.5% caramel
Total flavouring	3% w/w
water (added)	93-4%
acidulant	0.14% w/w
Sweetener	0-1%
pH	3.5
Viscosity at 20°C	Between 1 and 2 mPa.s

Vanilla beverage flavouring composition

The following vanilla beverage flavouring composition may be diluted between 1:50 and 1:100, preferably about 1:75 to produce a vanilla flavoured beverage.

Ingredient	
ethanol	0.04%
Propylene glycol	2.3%
Key flavouring	0.06% vanilla extract
Total flavouring	2% w/w
water (added)	94.0%
acidulant	0.2% w/w

pH	3.5
Viscosity at 20C	Between 1 and 2 mPa.s

Additional ingredients may include colours, sweeteners and preservatives.

Amaretto beverage flavouring composition

The following amaretto beverage flavouring composition may be diluted between 1:50 and 1:100, preferably about 1:75 to produce an amaretto flavoured beverage.

Ingredient	
ethanol	0.1%
Propylene glycol	2.4%
Key flavouring	0.08% almond extract
Total flavouring	3.4% w/w
water (added)	91-93%
acidulant	0.16% w/w
pH	3.5-3.7
Viscosity at 20C	Between 1 and 2 mPa.s

Additional ingredients include colours, sweeteners and preservatives.

CLAIMS

1. A beverage flavouring composition for dilution of one volume of the composition with about 35 to about 200 volumes of liquid, wherein the composition has a pH of between about 3.5 and about 3.7, and a shelf life of at least 3 months

2. A beverage flavouring composition according to claim 1 wherein the pH is above 3.5.

3. The beverage flavouring composition according to claim 1 or claim 2 wherein the composition has a packaged shelf life of at least about 6 months.

4. The beverage flavouring composition according to any one of the preceding claims wherein the composition comprises one or more high intensity sweeteners.

5. The beverage flavouring composition according to claim 4 wherein the composition comprises acesulfame K and/or sucralose and/or natural caramel syrup.

6. The beverage flavouring composition according to claim 5 wherein the only high intensity sweeteners in the composition are sucralose and/or acesulfame K and/or natural caramel syrup.

7. The beverage flavouring composition according to any one of the preceding claims comprising no added sugar.

8. A beverage flavouring composition according to any preceding claim containing no, or substantially no calories.

9. The beverage flavouring composition according to any one of the preceding claims wherein the composition further comprises one or more components

selected from: colouring agents, acidity regulators, preservatives, and water.

10. The beverage flavouring composition according to any one of the preceding claims comprising less than 5% ethanol.

11. The beverage flavouring composition according to any one of the preceding claims comprising less than 1.2% ethanol.

12. The beverage flavouring composition according to any one of the preceding claims comprising less than 0.5% ethanol.

13. The beverage flavouring composition according to any one of the preceding claims containing no added buffer.

14. The beverage flavouring composition according to any one of the preceding claims comprising at least about 90% water.

15. The beverage flavouring composition according to any one of the preceding claims containing no added water activity reducing agent.

16. The beverage flavouring composition according to any one of the preceding claims having a viscosity of between about 0.8 mPa.s and about 5 mPa.s.

17. The beverage flavouring composition according to any one of the preceding claims wherein the flavour is provided by a key natural flavouring, extract or essence, present at about 0.05% to about 0.5% v/v.

18. The beverage flavouring composition of any preceding claim wherein the total flavouring content is between about 2% and about 4% w/w.

19. A beverage prepared by diluting the beverage flavouring composition claimed in any one of claims 1 to 18.

20. A beverage according to claim 19 wherein the beverage flavouring composition is diluted into any one of still water, sparkling water, soda water, tonic water, coffee, tea, milk, soda, cola, iced drinks, herbal tea, black tea, milkshake, beer, a spirit, a cocktail, hot chocolate or cocoa, or any other potable liquid.

21. A packaged beverage flavouring composition comprising packaging containing a flavoured beverage composition according to any one of claims 1 to 18.

22. A method of making a beverage comprising the step of admixing a beverage flavouring composition according to any of claims 1 to 18 with a potable liquid.

23. A method of claim 22 wherein the potable liquid is selected from still water, sparkling water, soda water, tonic water, coffee, tea, milk, soda, cola, iced drinks, herbal tea, black tea, milkshake, beer, a spirit, a cocktail, hot chocolate or cocoa.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. A23L2/385 A23L2/56 A23L2/60 A23L2/68
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A23L

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 practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/041911 A1 (GAMAY ALY [US]) 12 February 2009 (2009-02-12) paragraph [0024] - paragraph [0025] paragraph [0030] - paragraph [0031] paragraph [0033] paragraph [0036] - paragraph [0037] paragraph [0050] - paragraph [0052]; claims 1,4,7; example 7 -----	1,3-16, 18-23
X	US 2009/181148 A1 (SAGGIN RAFFAELLA [CH]) 16 July 2009 (2009-07-16) paragraph [0012] - paragraph [0021] paragraph [0026] paragraph [0040]; examples 1,2,5 -----	1-13, 17-23

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[X] Further documents are listed in the continuation of Box C.

[X] 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

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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
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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 8 293 299 B2 (RAGNARSSON KARL [US] ET AL) 23 October 2012 (2012-10-23) column 3, line 58 - column 4, line 20 column 4, line 38 - line 43 column 4, line 51 - column 5, line 3 column 21, line 62 - column 22, line 8 column 22, line 38 - line 49 column 23, line 15 - line 21 column 23, line 61 - column 24, line 25; tables 27,28 -----	1,3-12, 18-23
X	US 2002/197376 A1 (BROZ RICHARD [US]) 26 December 2002 (2002-12-26) paragraph [0001] paragraph [0016] paragraph [0018] - paragraph [0022] paragraph [0025] - paragraph [0026]; examples 3,4 -----	1-12, 15-23

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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