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(54) Title: A DISPENSER AND COMPOSITION TO MAKE ICE COFFEE

(57) Abstract: A holder to dispense and prepare ice coffee, consisting of a first compartment containing liquid coffee extract, a second compartment containing a propellant, a nozzle with a valve, and whereby at least one additive, such as sugars, sweeteners, aromas or a combination thereof, can be added to the concentrate in order to spray a jet of product onto a liquid.

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A dispenser and composition to make ice coffee

The present invention concerns a preparation of ice coffee and, in particular, a holder and pressurised dispenser containing an amount of liquid coffee extract to prepare ice coffee, whereby the liquid coffee extract with additives is composed in such a manner that no additional mixing is required.

Ice coffee is a refreshing beverage, consisting of a coffee extract mixed with flavouring which is added to a liquid, such as milk, and ice.

Ice coffee is traditionally prepared by mixing the various ingredients with a blender, whereby it is also possible to crush the ice at the same time.

Such a method is well-known in accordance with JP63301744.

Prepared ice coffee is sold in a recipient such as Nestlé's nescafé frappé®. For some consumers the solution must be mixed better. EP1020121 therefore describes a powder which is better solvable in cold milk.

CA951567 and GR1004081 also describe granulates and crystals, respectively, which must be dissolved in order to prepare ice coffee.

Another method to prepare ice coffee is well-known from EP1098570, according to which a cooled coffee is obtained by putting a coffee extract in a liquid under low-oxygen conditions, and adding sodium carbonate as a buffer, sugar and honey. When opening the recipient, the extracted liquid is spread over the crushed ice.

JP2002095416 describes a method to prepare ice coffee in a transparent bottle, consisting of a coffee extract and a milk constituent phase, including an UHT treatment and an added sucrose fatty acid ester.

A cold coffee drink in accordance with JP11075693 is obtained by freezing a coffee concentrate with liquid cow's milk.

The main disadvantage of the above-mentioned techniques to prepare ice coffee is that the various ingredients must be mixed with supplementary additives. In addition, resealable recipients involve the risk of contamination.

The valuation of liquid coffee is expressed in brix, a sugar solution scale at a certain temperature and indicates how much of the liquid's mass-percent consists of sugar.

According to the "Tea & Coffee Trade Journal, Vol. 178/No.5, 2006", a pure liquid coffee extract with a brix of 23.5 is stable and has natural antimicrobial properties.

In US3119695 a concentrate with 30 brix is stabilised.

Surprisingly, we have discovered that the composition of our liquid coffee extract with additives, contained in a pressurised recipient and sprayed onto a liquid, results in a reliable and high-quality ice coffee.

This invention is therefore aimed at providing a solution for the above-mentioned disadvantages.

A pressurised recipient is filled with a liquid coffee extract to which at least one of the following additives such as aromas, sugars and/or sweeteners is added in proportion, and which can be adapted depending on the consumer's preferences.

Our invention has the following advantages. The consumer himself determines the portion he wishes to consume, without having to close the recipient again afterwards, involving the risk of contamination.

5 In addition, the liquid coffee extract with additives is composed in such a manner that it has a high antimicrobial and stabilising effect.

Our invention does not require any additional mixing installations, since our pressurised dispenser sprays the composed extract onto a liquid surface, in the form of a jet, creating a mixing effect. This has a second advantage.

10 Another advantage is that our preparation method for ice coffee, by using an appropriate holder and dispenser, results in a layer of foam on the ice coffee.

The gases in the holder and dispenser keep the consumable contents free of contamination and ensure the fire safety. This has a last advantage.

The invention is detailed below.

15 The preparation of ice coffee in accordance with our invention consists of a holder and dispenser, which is pressurised and allows the contents to be sprayed onto a liquid, in the form of a jet.

The holder consists of a space, containing a liquid coffee extract, and a space with a pressure medium. Both compartments are separated from each other. The holder is fitted with a nozzle and a valve to separate the compartment with the extract and the nozzle.

20 The composition of the liquid coffee extract consists of an amount of liquid coffee concentrate, to which at least one additive such as sugars, artificial sweeteners and aromas is added. The composition can be a combination of the foregoing, or a specific selection.

25 Sugars are mainly understood to mean, without any limitation, monosaccharides and disaccharides such as dextrose, fructose, glucose, saccharose (sucrose), maltose, etc.

The artificial sweeteners mainly concern acesulfame K, sucralose, saccharine, aspartame, mannitol, sorbitol, xylitol, etc.

30 In addition, various aromas, both natural and artificial, can be added such as vanilla, nuts, alcohol-free flavouring such as rum, Irish cream, Amaretto, Whisky, Cognac, as well as cream, milk aroma,...

It is clear that the above-mentioned list of additives is not exhaustive and that other combinations are possible as well.

In addition, the additives can be added to the composition in a variety of forms, i.e. liquid, viscous, powdered, gel, ...

35 The proportion between the additives is such that the consumer can choose the composition which meets his preferences.

40 The holder has a space with a pressure medium. This pressure medium preferably is a propellant, such as nitrogen (N₂) and/or nitrous oxide (N₂O₂). This pressure medium will dispense the product, mixed with additives, from the holder, through other space and through the nozzle.

Below are several possible compositions, but this list is not exhaustive. These examples are only illustrative and cannot be considered as a limitation for the invention.

Example 1

Coffee concentrate 28 Brix : 450g.
Sweeteners : 7g.
Vanilla aroma : 4g.
5 Nitrogen : 2.8g.

Example 2

Coffee concentrate 40 Brix : 1000g.
Sweeteners : 20g.
10 Vanilla aroma : 12g.
Amaretto aroma : 55g.
Nitrogen : 8g.

Example 3

15 Coffee concentrate 40 Brix : 1000g.
Sucralose : 8g.
Acesulfame K : 10g.
Vanilla aroma : 10g.
20 Nitrogen : 9g.

As regards the proportion, we suggest the following ratio

Coffee concentrate : 80-90%

Artificial sweeteners : 0-2%

Sugars (mono- and disaccharides) : 0-20%

25 Aromatic additives : 0-10%

Propellant (nitrogen and/or nitrous oxide) : 0.1-2%

The Brix value of the liquid coffee extract is preferably between 20 and 70.

In accordance with a possible embodiment, the holder is turned upside down, with the
nozzle facing downwards, so that the product can be dispensed through the nozzle. A jet
30 of liquid coffee extract with additives is then sprayed onto a liquid, through the nozzle.
This liquid could be milk.

According to another possible embodiment, the holder is fitted in a dispensing device.

This dispensing device allows the consumer to prepare ice coffee automatically. At least
one holder is fitted in the dispensing device. In case of several holders with different
35 composition, the consumer can choose his preferred holder.

This dispensing device can be fitted with a refrigerating device, to keep the holders
sufficiently cool. Well-known refrigeration techniques such as peltier technology,
convection, conduction, heat exchange,... are eligible.

The dispensing device can also be fitted with an ice generator to dispense ground ice
40 shavings while dispensing the extract.

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Claims

- 5 1. A holder to dispense ice coffee, consisting of a first compartment with a pressure medium, a second compartment with a liquid coffee extract composition and whereby both compartments are separated from each other, a nozzle and a valve and **characterised by the fact that** the composition consists of a liquid coffee concentrate and at least one additive, such as sugar, an artificial sweetener and an aroma or a combination thereof.
- 10 2. A holder to dispense ice coffee according to claim 1 **and characterised by the fact that** the composition proportionally consists of 80-90% coffee concentrate, 0-2% artificial sweeteners, 0-20% mono-and disaccharides, 0-10% aromatic additives and 0.1-2% propellant.
- 15 3. A holder to dispense ice coffee according to claims 1 and 2 **and characterised by the fact that** the Brix value for the liquid coffee extract is between 20 and 70.
- 20 4. A holder to dispense ice coffee according to claims 1-3 **and characterised by the fact that** the sugars belong to the group of dextrose, fructose, glucose, saccharose (sucrose) and maltose.
- 25 5. A holder to dispense ice coffee according to claims 1-4 **and characterised by the fact that** the artificial sweeteners belong to the group of acesulfame K, sucralose, saccharine, aspartame, mannitol, sorbitol and xylitol.
- 30 6. A holder to dispense ice coffee according to claims 1-2 **and characterised by the fact that** the aromatic additives, both natural and artificial, belong to the group of vanilla, nuts, alcohol-free flavouring and milk aroma.
- 35 7. A holder to dispense ice coffee according to claims 1-6 **and characterised by the fact that** the additives can be added to the liquid coffee extract in a liquid, solid, viscous or gel-like state.
- 40 8. A holder to dispense ice coffee according to one of the above-mentioned claims **and characterised by the fact that** the liquid coffee extract composition is sprayed as a jet onto a liquid, such as milk.
9. A holder to dispense ice coffee according to claims 1-8 **and characterised by the fact that** the contents are dispensed by facing the nozzle downwards.
10. A holder to dispense ice coffee according to the above-mentioned claims **and characterised by the fact that** the pressure medium is a propellant.
11. A dispensing device to prepare ice coffee according to claims 1-10 with at least one holder, fitted with a first compartment containing a pressure medium, a second compartment containing a liquid coffee extract with at least one additive, and whereby the two compartments are separated from each other, and a nozzle to dispense ice coffee **and characterised by the fact that** the holder is fitted in such a manner that the contents can be sprayed onto a liquid by means of the pressure medium, to prepare ice coffee.
12. A dispensing device to prepare ice coffee according to claim 11 **and characterised by the fact that** the dispensing device allows the consumer to

make a choice of various holders with liquid coffee extracts, containing other additives and compositions.

13. A dispensing device to prepare ice coffee according to claims 11-12 **and characterised by the fact that** ground ice shavings can be added.
- 5 14. A dispensing device to prepare ice coffee according to claims 11-13 **and characterised by the fact that** the a refrigerating device can be installed.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Week 200248 Thomson Scientific, London, GB; AN 2002-448057 XP002511179 & JP 2002 095416 A (MITSUBISHI CHEM CORP) 2 April 2002 (2002-04-02) cited in the application abstract	1-14
A	US 2 977 231 A (IRVING FOX ET AL) 28 March 1961 (1961-03-28) example 18 ----- -/--	1-14

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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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.
A	DATABASE WPI Week 200371 Thomson Scientific, London, GB; AN 2003-751170 XP002511206 & JP 2003 159002 A (HOYU YG) 3 June 2003 (2003-06-03) abstract	1-14
A	US 3 119 695 A (KAHAN MORTIMER J) 28 January 1964 (1964-01-28) cited in the application claim 1	1-14
A	JP 11 075693 A (DUSKIN CO LTD) 23 March 1999 (1999-03-23) cited in the application abstract	1-14

INTERNATIONAL SEARCH REPORT

Information on patent family members

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