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ning of each regular issue of the PCT Gazette.

(54) Title: A BOUILLON AND/OR SEASONING TABLET CONTAINING CEREAL, VEGETABLE AND/OR FRUIT FIBERS

(57) Abstract: The present invention concerns a bouillon and/or seasoning tablet and/or cube, which comprises, in total % in weight, 0.5-10% oil and/or 0-5 % fat, binders, salt, between 2 and 3 % of total water, and between 0.5 and 8 % of cereal, vegetable or fruit fibers, as well as optionally sugar, spices, flavors, taste enhancers, dehydrated vegetables, herb leaves and/or plant extracts.



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**A bouillon and/or seasoning tablet containing cereal,
vegetable and/or fruit fibers.**

The present invention concerns a bouillon and/or seasoning
5 tablet containing cereal, vegetable and/or fruit fibers, as
well as a process for the production of said tablets.

The normal way to produce a bouillon and/or seasoning
tablet is to homogenize the ingredients of the recipe in a
10 mixer using a certain sequence. Water is often an integral
part of the recipe. During this operation, some crust
formation occurs in said mixer, which provokes afterwards
some obligation of stopping the mixer to clean intensively.
Sometimes also lumps occur in the produced mixtures. By the
15 tabletting being carried out after, the presence of lumps
in the produced mass causes weight variations of the
produced tablets and as a consequence variations of the
tablet hardness. In addition, the water is not distributed
homogenously so that there are hardness variations within
20 the tablet structure. Lumps in the tablets cause problems
during the dissolution of said tablets even in hot water.
The solubility of said tablets is often not satisfying for
the consumer.

25 In the patent WO 2004/049831 A1, a hard bouillon tablet or
cube, which comprises liquid oil and possibly solid fat,
crystals, fillers, sticking agents as well as optionally
spices, flavors, dehydrated vegetables, herb leaves and/or
plant extracts are protected.

30

The addition of cereal, vegetable or fruit fibres is not
mentioned. The tablets or cubes according to the patent
WO 2004/049831 A1 have the disadvantage of a long

dissolution time and a possible oiling out during storage. The process necessary to produce the bouillon masses, which are later pressed in a tablet or cube, has the disadvantage that a significant encrustation of the mixing device
5 occurs, the produced mass often contains lumps and the water activity of the mass might vary during storage.

All the mentioned disadvantages can be reduced or even avoided by using cereal, vegetable or fruit fibres. The
10 cereal, vegetable or fruit fibres are pre-wetted in a separate step with a saturated water/salt solution.

The objective of the present invention is to produce a tablet, wherein there is no more crust formation in the
15 mixer and wherein there are no more lumps in the produced mass as well as in the final tablets. This result is achieved preferably by adding prewetted cereal, vegetable and/or fruit fibers to a mixture of all the ingredients. Preferably, the fibers are added at the end of the mixing
20 procedure. However, the fibres can also be added during earlier mixing steps accepting a higher risk of encrustation of the mixing equipment.

The present invention concerns a bouillon and/or seasoning
25 tablet and/or cube, which comprises, in total % in weight, 0.5-10 % oil and/or 0-5 % fat, binders, salt, between 1 and 5 % of total water, and between 0.5 and 8 % of cereal, vegetable and/or fruit fibers. The product according to the invention contains optionally sugar, spices, flavors, taste
30 enhancers, dehydrated vegetables, herb leaves and/or plant extracts . The tablet preferably contains between 0.5 and 2 % of vegetable, cereal and/or fruit fibers.

It is clear that the dehydrated vegetables inherently contain already a certain amount of fibers. In the tablet of the invention, the amount of dehydrated vegetables does not exceed normally 5 % in weight. According to the
5 invention we add in the recipe for preparing the tablet the above mentioned amount of fibers: this part is added and not inherently present. The fibers concerned are obtained from the concerned vegetables, cereals or fruits, by any mechanical, thermal and/or chemical procedure, like
10 dehulling, milling, sieving and drying. These fibers have different sorption isotherms than the dehydrated vegetables (different water release). They are available on the market, e.g. from COSUCRA, Herbafood and Microfood.

15 The expression tablet in the present description means "tablet or cube obtained by pressing a bouillon or seasoning powder, preferably a free flowing powder, into a tablet or cube form".

20 The expression "oil" means "oil or mixture of oils which is liquid at room temperature and which more especially has a solid fat content (SFC) of less than 5 % at 20°C".

The expression binders means "the addition of ingredients
25 which (combined with an adequate increase of the water activity, aw value) be subject to a glass transition and support as a consequence the binding".

The cereal, vegetable and fruit fibers contain up to 90 %
30 of cellulose. Preferably, these fibers contain more than 50 % of cellulose. Most preferably, these fibers contain between 65 % and 80 % of cellulose.

There is no limitation in the choice of the fibers used. But, preferably these fibers are obtained from oat, wheat, rice, cassava, tomato, potato, pea, sugar beat, carrot, citrus and apple fibers.

5

According to the invention, the fat and oil content of the tablet is comprised between 0.5 and 15 % in weight.

Preferably, there is a minimum of fat in the tablet, which means from the whole fat and oil content, there is less

10 than 50 % of fat. Preferably, the fat content is of less than 40 %.

There is no limitation in the choice of the oil.

Preferably, the oil is taken from the group consisting of

15 sunflower oil, olive oil, corn oil, canola oil, palm oil (non-hydrogenated or hydrogenated) or palmolein.

The taste enhancer present can be Mono-Sodium Glutamate and/or yeast extract.

20

With the new recipe structure according to the invention, it is possible to produce a tablet or cube having a better solubility in water. In hot water the dissolution of a vegetable bouillon tablet according to the invention

25 (10.5 g) containing carrot fibers took about 60 s. The dissolution of a comparable tablet without carrot fibers took about 100 s. The dissolution was measured with an ERWEKA ZT71.

30 With the new recipe structure according to the invention, it is possible to reduce/avoid the oiling-out of produced tablets or cubes. For a vegetable bouillon tablet according to the invention, containing carrot fibers, no separation

of oil on the packaging material was noticed visually. Using the same storage conditions and the same composition but without carrot fibres, a significant separation of oil on the packaging material was noticed visually.

5

With the new recipe structure according to the invention, it is necessary to declare the addition of fibres on the packaging. Preferably, the term vegetable fibres is used in the ingredient list.

10

With the new recipe structure according to the invention, it is possible to produce bouillon and/or seasoning masses having a more constant water activity with time.

Preferably, the water activity does not drop more than 0.01 (measured with a rotronic HygroPalm or HygroLab) between the 2nd and 21st day after production. As a consequence the water activity of freshly produced tablets or cubes behaves in the same manner.

20 The binders are taken from the group consisting of dextrose syrup, maltodextrin, citric acid, meat extract and processed flavors. Processed flavors are flavors obtained by reaction which are containing major amounts of amorphous substances and which are thus showing a glass transition
25 temperature.

The tablet of the invention can also comprise sodium chloride, Monosodiumglutamate (MSG) and/or sugar.

30 The spices can be any type of spices. For example, pepper, curry, ginger, paprika, cloves and nutmeg are used. The flavors used are common top, middle and base notes.

The dehydrated vegetables are any type of vegetables, for example tomato, onion, paprika, leek, garlic and carrot pieces or powders.

- 5 As herb leaves, e.g. oregano, thyme, tarragon, rosemary, chervil, parsley, chive and coriander are preferably used.

Finally, concerning the plant extracts, e.g. lovage, oregano, nutmeg, laurel, pepper, paprika, chili and onion
10 extract are introduced in the mixture.

The present invention concerns furthermore the process for the production of the above described bouillon and/or seasoning masses, wherein the fibres are wetted with a
15 saturated water/salt solution by spraying said saturated solution on the fibres. Preferably, the wetting takes place in a low shear or a high shear mixer. The wetted fibres are then mixed with all the other ingredients and the obtained mixture is tabletted. At least a short storage of a few
20 hours is required to allow the fibres to exchange water with the other components of the mix.

The saturated salt solution contains preferably about 20 to 35 % in weight of salt. The salt used is preferably sodium
25 chloride. For sodium chloride, the saturated solution contains preferably about 25 to 28 % in weight of salt. But every other food grade salt which decreases the water activity of the solution below 0.8 can be used. For sodium chloride, the water activity of the used solution is
30 preferably between 0.72 and 0.8.

Example 1:

A pre-mix of wetted wheat fibers is produced by spraying a saturated water/salt solution (about 36 g sodium chloride per 100 g water) on carrot fibers. The wetting takes place
5 in a low shear or a high shear mixer. The mixer can be continuous or discontinuous.

To produce the bouillon or seasoning mass, the ingredients of the recipe as for example (in total percent in weight)
10 about 42 % sodium chloride, about 15 % of mono sodium glutamate, about 2.3 % sunflower oil, about 20 % of maltodextrin as well as different vegetable pieces and herb leaves, spices and flavors are mixed in a low shear or a high shear mixer. Afterwards, about 3 % of the pre-mix
15 containing the wetted carrot fibers is added to the bouillon or seasoning mass and the mixing continuous or starts again.

20 **Example 2:**

A pre-mix of wetted oat fibers is produced by spraying a saturated water/salt solution (about 36 g sodium chloride per 100 g water) on oat fibers. The wetting takes place in
25 a low shear or a high shear mixer. The mixer can be continuous or discontinuous.

To produce the bouillon or seasoning mass, the ingredients of the recipe as for example (in total percent in weight)
30 about 43 % sodium chloride, about 16 % of mono sodium glutamate, about 5 % olive oil, about 24 % of maltodextrin as well as different vegetable pieces and herb leaves, spices and flavors are mixed in a low shear or a high shear

mixer. Afterwards, about 3 % of the pre-mix containing the wetted oat fibers is added to the bouillon or seasoning mass and the mixing continuous or starts again.

Claims

- 1) A bouillon and/or seasoning tablet and/or cube, which
5 comprises, in total % in weight, 0.5-10 % oil, and/or 0-5 %
fat, binders, salt, between 1 and 5 % of total water, as
well as between 0.5 and 8 % of cereal, vegetable and/or
fruit fibers, as well as optionally sugar, spices,
flavors, taste enhancers, dehydrated vegetables, herb
10 leaves and/or plant extracts.
- 2) A bouillon and/or seasoning tablet according to claim 1,
wherein the fibers contain up to 90 % of cellulose.
- 15 3) A bouillon and/or seasoning tablet according to claims 1
or 2, wherein the fibers are taken from the group
consisting of oat, wheat, rice, cassava, tomato, potato,
pea, sugar beat, carrot, citrus and apple fibers.
- 20 4) A bouillon and/or seasoning tablet according to any of
claims 1 to 3, wherein the content of fat and oil is
comprised, in total % in weight, between 1 and 15 %.
- 5) A bouillon and/or seasoning tablet according to claim 4,
25 wherein the content of fat is lower than 50 % of the total
fat and oil content.
- 6) A bouillon and/or seasoning tablet according to any of
claims 1 to 5, wherein the oil is selected from the group
30 consisting of sunflower oil, olive oil, corn oil, canola
oil, palm oil (non-hydrogenated or hydrogenated) and
or palmolein.

7) A bouillon and/or seasoning tablet according to any of claims 1 to 6, wherein the binders are taken from the group consisting of maltodextrin, citric acid, meat extract, and processed flavors.

5

8) A bouillon and/or seasoning tablet according to any of claims 1 to 7, wherein it contains monosodium glutamate and/or sugar.

10

9) A process for the production of a product according to any of claims 1 to 8, wherein the fibres are wetted with a saturated salt solution by spraying said saturated solution on the fibres, the wetted fibres are then mixed with all the other ingredients and the obtained mixture is

15

tabletted.

10) A process according to claim 9, wherein the saturated salt solution contains about 20 to 35 % in weight of salt.

20

11) A process according to any of claims 9 or 10, wherein the salt is sodium chloride.

12) A process according to claim 11, wherein the salt solution contains 25 to 28 % in weight of sodium chloride.

25

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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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 practical, search terms used)

EPO-Internal, WPI Data, PAJ, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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☒ 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

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