

## Cooking aid

The subject of the present invention is a cooking aid, a process for its preparation and a plant for carrying out the process.

5 US-A-4060645 (Risler et al.) describes a dehydrated product in the form of grains instantly soluble in water which have a continuous porous structure and a smooth surface which can be obtained by extruding, in a vessel where a subatmospheric pressure exists, a food  
10 material comprising fruit, vegetable or seed extracts, starches, gums or alginates, meat, fish or yeast extracts, and/or protein hydrolysates, for example.

US-A4946693 (Risler et al.) describes a food product consisting of a dehydrated mass in the form of a  
15 powder or of flakes of milk, fat, gelatinized starch, meat and vegetable extracts or protein hydrolysates, for example, and of a filling of partially dehydrated vegetable, meat or pasta pieces, for example, this filling being packaged separately.

20 The aim of the present invention is to provide a cooking aid in an attractive individual form having, in its mass, visually identifiable pieces of vegetables, meat or other filling, fat and pulverulent flavouring ingredients, for example.

25 To this effect, the cooking aid according to the present invention has the shape of a rock and comprises 8-50 % by weight of visual components held in a cement consisting of 15-35 % fat and 20-70 % dehydrated base.

30 Likewise, the process for the preparation of a cooking aid according to the present invention comprises the successive steps of mixing the visual components with the molten fat and the dehydrated base, shaping the mixture obtained and cooling.

35 Finally, the plant for carrying out the process for the preparation of a cooking aid according to the present invention comprises a device for mixing the visual components with the molten fat and the dehydrated base, a device for shaping the mixture obtained in cells comprising ejecting means, and a cooling device.

The cooking aid according to the present invention effectively has all the desired ingredients in one and the same rock of attractive appearance because of the identifiable pieces within its mass.

5           The process and the plant according to the present invention make it possible to prepare this cooking aid in a simple manner and in a limited number of steps.

10           In the present disclosure, the expression "in the form of a rock" should be understood as having the shape of an individual rock or disc-shaped stone of relatively small size and with an uneven surface as regards its physical appearance and its colour.

15           The expression "visual components" should be understood as components whose size is sufficiently large and whose colour exhibits sufficient contrast relative to that of the cement to be distinguished with the naked eye.

20           The term "cement" should be understood as a mass of homogeneous texture and colour capable of ensuring the cohesion of the cooking aid despite its high content of visual components.

25           In the cooking aid according to the present invention, the visual components may be dehydrated pieces of any food product which can be taken into consideration as a filling.

30           These visual components may be in particular pieces of one or more vegetables, fruits, aromatic herbs, meats, fish and/or crustacea, spices and/or whole or crushed seeds, for example.

          The fat may comprise at least one vegetable fat and/or one animal fat, hydrogenated or otherwise and supplemented or otherwise with an antioxidant.

35           This fat preferably is of a type or has a composition such that it is solid at room temperature, in other words at a temperature of between about 20 and 30°C, for example. A hydrogenated palm fat which has a clear melting point of about 41-43°C is particularly suitable in this regard.

The dehydrated base may comprise food materials in finely subdivided form chosen according to their capacity to confer adequate flavour or texture on the cooking aid, for example.

5           This dehydrated base may comprise in particular flavouring agents such as sugars, salts, spices, fruit, vegetable or meat extracts, protein hydrolysates, yeast autolysates, products of the Maillard reaction or flavour molecules, taste-enhancing agents such as 5'-nucleotides  
10 or glutamate, and/or binding agents such as starches, maltodextrins, gums or alginates, for example.

To carry out the process for the preparation of a cooking aid according to the present invention, it is possible to add the dehydrated base to the molten fat, to  
15 mix and to add the visual components after mixing, for example. The temperature of the molten fat may be about 50-70°C, for example.

It is possible to pour the mixture into shaping cells, in particular by means of a hopper, to eject the  
20 rocks formed from the cells, to receive them on a cooled surface and to stabilize their shape in a cooling device, for example.

The temperature of the mixture of the visual components with the molten fat and the dehydrated base is preferably adjusted to a value such that it has adequate  
25 flow properties to fill the cells, without being either too soft or too sandy. A temperature of about 40-48°C can be recommended in this regard.

It has been observed, indeed, that there is a  
30 risk of obtaining a product with an excessively sandy texture which tends to crumble on leaving the cells, as well as poor filling of the cells which causes heterogeneity in the weight of the rocks, if the temperature of the mixture is adjusted to a temperature of less than  
35 about 40°C, for example.

Likewise, there is a risk of obtaining a product with an excessively soft consistency which collapses completely on the receiving surface if the temperature of the mixture is adjusted to a temperature greater than

about 48°C, for example.

The ejected rocks may be received on a surface, in particular the surface of a conveyor belt, cooled to a temperature of between 5 and 10°C, for example. It is  
5 then possible to stabilize their shape in a cooling device made in the form of a cooling tunnel through which the conveyor belt runs and in which air is circulated at 5-10°C, for example.

In the plant for carrying out the process for the  
10 preparation of a cooking aid according to the present invention, the device for mixing the visual components with the molten fat and the dehydrated base may comprise a jacketed mixer, in particular a band mixer, for example.

15 A jacketed mixer can serve simultaneously as device for adjusting the temperature of the mixture to an appropriate value, in particular by circulating a cooling fluid at about 30-70°C, for example.

The mixing device may be connected to the shaping  
20 device through transporting means, preferably thermo-regulated, such as a belt conveyor or an Archimedean screw, the belt or the screw ending above a jacketed feed hopper provided above the shaping device, for example.

Such a jacketed feed hopper can be made of  
25 stainless steel and can also serve as device for maintaining the temperature of the mixture at an appropriate value, in particular by circulating a cooling fluid at about 40-50°C, for example.

The shaping device may comprise a rotating drum  
30 whose cylindrical wall is pierced with cells, or a horizontal plate pierced with cells which is capable of being moved horizontally by a reciprocating movement, it being possible for the cells to be arranged in rows, for example.

35 The ejecting means may be made in the form of pistons going through the bottom of the cells, for example. These pistons are preferably heatable, in particular with the aid of heating elements.

A cooled receiving surface, in particular the

upstream end of a cooled conveyor belt, may be provided under the ejecting means in order to receive the rocks ejected from the cells, for example.

5 The cooling device may be made in the form of a cooling tunnel through which the conveyor belt passes, for example.

10 In a preferred embodiment of the plant for carrying out the process for the preparation of a cooking aid according to the present invention, the shaping device comprises a rotating drum whose cylindrical wall is pierced with cells arranged in rows and it is surmounted by a jacketed feed hopper whose lower part takes the cylindrical shape of the surface of the rotating drum and comprises stirring means.

15 The stirring means may comprise rotating stirrers whose axle is parallel to that of the rotating drum and carries stirring and/or distributing spatulas, for example. Preferably, the stirring means comprise two rotating stirrers with hollow axles situated in the same plane and carrying spatulas, in particular radial spatulas, whose configuration is adapted to the flow characteristics of the mixtures, avoids shearings and brings about stirring of the mixture with spatula on the rotating drum and/or in the cells without damaging the visual ingredients present in the mass.

25 The speed of rotation of the stirrers can be adjustable according to the speed of rotation of the drum, the viscosity of the mixture and the desired degree of filling of the cells, the aim being to control the shape of the cooking aids and to limit the weight differences between cooking aids from the same manufacturing process.

35 The hopper may comprise two walls which are parallel to and two walls which are perpendicular to the axis of the drum. The walls of the hopper which are parallel to the axis of the drum may be generally vertical in their upper part and may curve inwards in their lower part around the cylinders described by the ends of the rotating spatulas of the stirrers, so as to avoid any

dead zone in which the mass might accumulate.

In this embodiment, the hopper may therefore be maintained against the surface of the rotating drum, and the stirrers may distribute the mixture in a particularly efficient and homogeneous manner in the cells during  
5 their passage under the opening of the hopper.

In this preferred embodiment of the plant, the shaping device may comprise, in addition, a movable jacketed outer liner taking the shape of the cylindrical  
10 surface of the rotating drum between the feed hopper and the ejecting means, and a movable inner liner taking the shape of the inner surface of the wall of the rotating drum under the hopper and beyond, up to roughly the vertical position.

15 The inner liner closes the cells under the hopper in order to keep the mixture in the cells. It continues this role up to the vertical position, from where it is replaced by the outer liner which retains the mixture in the cells at the surface of the rotating drum up to the  
20 ejecting means provided in the lower part of the drum.

The shaping device may also comprise a scraping blade for cleaning the surface of the rotating drum downstream of the ejecting means and upstream of the hopper, and a scraping blade for cleaning the inner  
25 surface of the wall of the rotating drum downstream of the ejecting means and upstream of the inner liner.

Finally, the means for heating the surface of the rotating drum, in particular means for heating using infrared radiation or by blowing hot air may be provided  
30 downstream of the ejecting means and upstream of the blade for scraping the surface of the rotating drum.

This preferred embodiment of the plant makes it possible to carry out the process according to the present invention in a particularly efficient and controlled manner and without interruption over a relatively  
35 long period, in particular by maintaining the mixture at an appropriate temperature in the hopper by circulating a cooling fluid in its jacket and in the axles of the stirrers, by the even distribution of the mixture in the

cells by means of the stirrers positioned just above and turning at an adjustable speed, by avoiding clogging by virtue of the hopper and the outer liner which take the cylindrical shape of the rotating drum and are pressed against its surface, by maintaining the mixture at an appropriate temperature in the cells by circulating a cooling fluid in the jacketed outer liner, and by the efficient cleaning of the wall of the rotating drum by scrapers linked to means for heating the non-ejected product residues.

This preferred embodiment of the plant is also designed such that it can be easily and rapidly cleaned between two productions or in the case of accidental clogging, the liners being movable, namely being attached to moving means which may comprise pistons and sliding devices which make it possible to stick them against the rotating drum with an adjustable pressure, to hold them at an adjustable distance from the drum, or to separate them from the drum, for example.

The plant for carrying out the process for the preparation of a cooking aid according to the present invention is described below with reference to the accompanying drawing in which:

- Figure 1 is a schematic side view of a first embodiment of the plant,
- Figure 2 is a schematic front view of the first embodiment represented in Figure 1,
- Figure 3 is a schematic side view of a second embodiment of the plant, and
- Figure 4 is a sectional side view of the hopper and the shaping device of a preferred embodiment of the plant.

In the embodiments represented in Figures 1 and 3, the present plant comprises a mixing device made in the form of a jacketed band (2) mixer (1), a device for shaping (3 or 4) in cells (8) comprising ejecting means made in the form of pistons (6) passing through the bottom of the cells, a cooled receiving surface made in the form of the upstream end (20) of a belt (10) for transporting the ejected cooking aids (11) which cross

cooling means made in the form of a cooling tunnel (21).

The mixing device (1) is connected to the shaping device (3) through a belt conveyor or an Archimedean screw symbolically represented by an arrow (50).

5           In the embodiment represented in Figures 1 and 2, the device for shaping the mixture comprises a rotating drum (3) whose cylindrical wall is pierced with cells (8) arranged in rows (7).

10           The rotating drum is placed under a feed hopper (9) and above the cooled surface of the upstream end (20) of the conveyor belt (10).

15           In the embodiment represented in Figure 3, the device for shaping the mixture comprises a horizontal plate (4) pierced with cells (8) arranged in three rows movable horizontally by a reciprocating movement, between a filling point (13) and an ejecting point (14).

20           A feed hopper (9) is provided above the filling point (13), the ejecting point (14) being provided above the cooled surface of the upstream end (20) of the conveyor belt (10).

25           Figure 4 is a sectional side view of the hopper (9) and of the shaping device, comprising a rotating drum (3) whose cylindrical wall is pierced with cells (8) arranged in rows, of a preferred embodiment of the plant.

          In this preferred embodiment, the lower part (24) of the jacketed feed hopper (9) takes the cylindrical shape of the surface of the rotating drum (3) and comprises stirring means (26).

30           The stirring means (26) comprise two rotating stirrers (27, 28) whose hollow axles (31, 32), parallel to that of the rotating drum, are situated in the same plane. These axles carry radial rows of spatulas (29, 30) arranged in the form of a star, it being possible for the spatulas of a stirrer (29) to pass between the spatulas of the other stirrer (30).

35           The hopper (9) comprises two walls (22, 23) which are parallel to and two walls (not represented) which are perpendicular to the axis of the rotating drum. The walls (22, 23) which are parallel to the axis of the drum are

generally vertical in their upper part and curve inwards in their lower part around the cylinders described by the ends of the rotating spatulas of the stirrers (27, 28).

The shaping device comprises, in addition, a  
5 jacketed movable outer liner (34) taking the shape of the cylindrical surface of the rotating drum between the feed hopper (9) and the ejecting means made in the form of pistons (6), as well as a movable inner liner (35) taking the shape of the inner surface (36) of the cylindrical  
10 wall of the rotating drum (3) under the hopper (9) and beyond, up to roughly the vertical position.

The movable liners (34, 35) are attached to moving means comprising pistons (40) and sliding devices (41).

15 The shaping device also comprises a blade (37) for scraping the surface of the rotating drum downstream of the ejecting pistons (6) and upstream of the hopper (9), as well as a blade (38) for scraping the inner surface of the wall of the rotating drum downstream of  
20 the ejecting pistons (6) and upstream of the inner liner (35).

Finally, means (39) for heating the surface of the rotating drum by blowing hot air are provided downstream of the ejecting pistons (6) and upstream of the  
25 blade (37) for scraping the surface of the drums.

The cooking aid according to the present invention is intended to be used as a seasoning for cooking any dish such as meat, vegetable or pasta. It is particularly well suited to commercialization as an accompanying  
30 dish for pasta or rice, in particular as an accompanying dish for oriental pasta, in the very packet containing these types of pasta.

The cooking aid according to the present invention and the process for its manufacture are illustrated below with the aid of examples in which the percentages  
35 are indicated by weight.

#### **Example 1**

A cooking aid is prepared with the aid of a plant similar to that represented in Figures 1, 2 and 4, in

which the shaping rotating drum has a diameter of 40 cm and a length of 82 cm and whose cylindrical wall is pierced with cells arranged in 20 rows parallel to the axis of the drum, at the rate of 18 cells per row.

5           The following operating parameters are used for the plant:

- Speed of rotation of the drum:           0.875 rpm
- Piston waiting time:                   25 s
- Linear speed of the conveyor belt:       1.25 m/min
- 10 - Temperature of the receiving surface: 12°C
- Drum-receiving surface distance:       25 mm
- Round cells, diameter:               29 mm
- depth:               20 mm

          The following recipe is applied:

- 15 - 10 % of visual components composed of julienne leeks and carrots, leaf parsley and thinly sliced chives,
- 30.5 % hydrogenated palm fat, and
- 59.5 % dehydrated base composed of 38 % salt, 7 % glutamate and the balance for 59.5 % of spices comprising
- 20 garlic, celery, thyme, pepper, tarragon, onion and curcuma.

          To carry out the process, the liquefied fat at 50°C is introduced into the mixer in which the temperature of the jacket is kept at 60°C. All the components of

25 the dehydrated base are introduced into the molten fat and stirred for 8 min. The visual components are added at the last moment. The temperature of the mixture is 46°C.

          The mixture obtained is introduced into the hopper of the rotating drum and the rocks are collected

30 at the end of the conveyor belt.

          The cooking aid thus obtained has the shape of rocks whose cement-like light green colour well emphasizes the visual components, in particular the carrot julienne.

35           A broth reconstituted from these rocks also exhibits attractive colour contrasts and general appearance.

## **Example 2**

          The procedure is carried out as described in

Example 1 by applying the following recipe:

- 15 % of visual components of red pepper squares, thinly sliced fried onion, leaf parsley and thinly sliced chives,

5     - 20.2 % of first beef juice,

- 8.7 % of hydrogenated palm fat, and

- 56.1 % of dehydrated base composed of 38 % salt, 7 % glutamate and the balance for 56.1 % of spices comprising ginger, nutmeg, chilli, cloves and tomato.

10             The cooking aid thus obtained has the shape of rocks in which the vegetables separate well on a pink cement background.

A broth reconstituted from these rocks also has attractive colour contrasts and general appearance.

15     **Example 3**

The procedure is carried out in the manner described in Example 1 by applying the following recipe:

- 9.9 % of visual components composed of dehydrated tomato squares, thinly sliced fried onion, dehydrated

20     black olive cubes and lyophilized courgette cubes,

- 30.5 % hydrogenated palm fat, and

- 59.6 % dehydrated base composed of 38 % salt, 10.8 % glutamate and the balance for 59.6 % of spices comprising garlic, basil, oregano, pepper and curcuma.

25             The cooking aid thus obtained has the shape of rocks in which the black olives separate particularly well on a dark green cement background.



### Claims

1. Cooking aid having the shape of a rock and comprising 8-50 % by weight of visual components held in a cement consisting of 15-35 % fat and 20-70 % dehydrated base.
2. Cooking aid according to Claim 1, in which the visual components are dehydrated pieces of one or more vegetables, fruits, aromatic herbs, meats, fish and/or crustacea, spices and/or whole or crushed seeds.
3. Cooking aid according to Claim 1, in which the fat comprises at least one vegetable fat and/or one animal fat, hydrogenated or otherwise and supplemented or otherwise with an antioxidant, and it is solid at room temperature.
4. Cooking aid according to Claim 1, in which the dehydrated base comprises food materials in finely subdivided form.
5. Process for the preparation of a cooking aid according to one of Claims 1-4, comprising the successive steps of mixing the visual components with the molten fat and the dehydrated base, shaping the mixture obtained and cooling.
6. Process according to Claim 5, in which the temperature of the mixture of the visual components with the molten fat and the dehydrated base is adjusted to a value such that it exhibits suitable properties for filling shaping cells, the mixture is poured into the cells, the rocks are ejected from the cells, they are received on a cooled surface and their shape is stabilized by cooling.
7. Process according to Claim 6, in which the dehydrated base is added to the molten fat, mixed, the visual components added after mixing, and the temperature of the mixture is adjusted to 40-48°C.
8. Plant for carrying out the process for the preparation of a cooking aid according to Claims 5-7, comprising a device for mixing the visual components with the molten fat and the dehydrated base, a device for shaping the mixture obtained in cells comprising ejecting



means, and a cooling device.

9. Plant according to Claim 8, in which a jacketed feed hopper is provided above the shaping device.

10. Plant according to Claim 8, in which the ejecting means comprise pistons passing through the bottom of the cells.

11. Plant according to Claim 8, in which the shaping device comprises a rotating drum whose cylindrical wall is pierced with cells.

12. Plant according to Claim 8, in which the shaping device comprises a horizontal plate pierced with cells which are movable horizontally by a reciprocal movement.

13. Plant according to Claim 8, in which the shaping device comprises a rotating drum whose cylindrical wall is pierced with cells arranged in rows and is surmounted by a jacketed feed hopper whose lower part takes the cylindrical shape of the surface of the drum and comprises stirring means.

14. Plant according to Claim 13, in which the stirring means comprise two rotating stirrers whose axle is parallel to that of the rotating drum and carries stirring and/distributing spatulas.

15. Plant according to Claim 13, in which the shaping device comprises, in addition, a movable jacketed outer liner taking the shape of the cylindrical surface of the rotating drum between the feed hopper and the ejecting means, and a movable inner liner taking the shape of the inner surface of the wall of the rotating drum under the hopper and beyond, until the roughly the vertical position.