



Process for drying a flavouring agent paste

The present invention relates to a process for drying a flavouring agent paste obtained by thermal
5 reaction of a pasty mixture comprising at least one free amino acid source and at least one reducing sugar.

In such pastes, the flavours are bound to flavour carriers, in general natural or synthetic polysaccharides such as native starches, dextrans or
10 vegetable fibres. The paste is then dried and the final dry cake is ground.

Patent EP 0,030,327 describes a process for the preparation of a flavouring agent whose flavour carrier is maltodextrin. It is added at cold temperature after
15 reaction of the paste and the whole drying operation is carried out under reduced pressure. During such drying, some flavouring agent pastes can behave in a disadvantageous manner. Some flavouring agent pastes, under the effect of being placed under vacuum, have in
20 particular a tendency to squirt and/or to swell.

Such an expansion can occur under the effect of gases which cannot escape from the paste which has become highly viscous under the drying conditions. Such an expansion highly limits the drying capacity of the
25 oven since it is necessary to provide for spreading on the plates which takes into account the final volume of the cake. For some pastes, the spreading is only 5 kg of paste per m² of plate.

The present invention proposes to overcome
30 these disadvantages.

To this effect, in the process according to the present invention, a starch having a high gelatinization temperature is added to the paste as flavour carrier before it is dried. To dry it, it is
35 preferably heated at 85-95°C for 20 minutes to 2 hours at atmospheric pressure, and the heating is continued at 70-95°C for 3 to 6 hours under reduced pressure.

It was observed, surprisingly, that this process indeed made it possible to overcome the
40 disadvantages of known processes without in any way

modifying the organoleptic qualities of the final product obtained after drying and then crushing.

To carry out the present process, a pasty mixture containing at least one free amino acid source
5 and at least one reducing sugar is heated.

The free amino acid source is preferably a vegetable or animal protein hydrolysate or a yeast extract. The proportions of free amino acids in the initial pasty mixture may be between 2 and 40%. The
10 free amino acid fraction may, for example, contain a single amino acid, in particular glutamate, which may then be incorporated into the initial mixture in relatively high proportions, up to 30% for example. The free amino acid fraction may also be a more complex
15 mixture of amino acids resulting from the acid or enzymatic hydrolysis of extracts of microorganisms, in particular of yeasts or of vegetable proteins derived in particular from soya bean or from cakes of oilseeds such as groundnut, for example. Sulphur amino acids are
20 incorporated into the mixture. They are in particular cysteine, cystine, methionine or thiamine. It is now known that they enhance the meat-like taste when the Maillard reaction occurs in their presence.

The reducing sugar is preferably a mono-
25 saccharide. It may in particular be chosen from xylose, arabinose, fructose and glucose, used alone or as a mixture. It may be added to the mixture in an amount of 0.5 to 10%.

The pasty mixture may have a water content of
30 20 to 40%, its pH may be adjusted to between 5 and 7 and then it may be heated for 1 minute to 6 hours at a temperature of 80 to 150°C. The paste obtained may be cooled to around 60-70°C, in a tank cooled with cold water, for example. Starch with a high gelatinization
35 power may then be added thereto in proportions of 3 to 30% by weight of dry matter of the reaction product, for example.

The starch having a high gelatinization temperature is preferably tapioca, maize or potato starch.

5 The paste obtained may be spread over the plates of a dryer in an amount of 7 to 18 kg/m², for example. It is then preferably dried in several stages during which the temperature generally decreases and the pressure, in absolute value, also decreases.

10 In a first stage, the paste may be heated at 85-90°C for 20 minutes to 2 hours, at atmospheric pressure, so as to gelatinize the starch within the mass.

During a second stage of the drying, the gelatinized paste may be kept at 70-95°C for a period
15 of 3 to 6 hours under reduced pressure. This second stage may be optionally carried out in several phases of which the first consists in heating the gelatinized paste for 1 to 3 hours at 85-90°C at an absolute pressure of 30-60 mbar, and then for 1 to 3 hours at
20 75-90°C at an absolute pressure of 15-30 mbar and a last stage of 20 to 90 minutes at 70-80°C at an absolute pressure of 2 to 15 mbar.

During its placing under vacuum, the paste, previously solidified during the first drying phase at
25 atmospheric pressure, does not squirt and no longer swells at the end of the drying.

The drying under reduced pressure may be optionally carried out in several stages and continued until a percentage humidity of 2 to 4% is obtained in
30 the final cake.

The final product can then be crushed and ground. It may be incorporated into a whole range of food products such as soup, sauces, condiments and the like. Its organoleptic qualities and its apparent
35 density are identical to those of the products obtained by a traditional drying process, but with yields up to 100% higher than those previously described.

The use of a starch having a high gelatinization temperature in such a paste according to the

invention has numerous other advantages such as a lower cost compared with other flavour carriers such as dextrans and allows less restrictive drying conditions, allowing broader temperature ranges.

5 The invention will be understood more clearly with the aid of the example below in which the percentages and parts are indicated by weight.

Example 1

10 There are incorporated into a paste of groundnut cake hydrolysate containing 70% dry matter, 40% free amino acids and of pH 6.8, 2% inosine monophosphate, 2.7% cysteine hydrochloride, 1.3% xylose, 0.6% glucose and 3.4% chicken fat. This mixture
15 is vigorously mixed for 10 minutes and heated at a temperature of 100°C for a period of 3 hours. The paste is transferred to a jacketed tank which is cooled with cold water and the temperature of the mixture is reduced to 60-70°C.

20 Tapioca starch is then added in an amount of 20% by weight of dry matter of the reaction product. The paste is vigorously mixed for 10 minutes and then it is spread over the plates of an oven in an amount of 10 kg/m². The paste is then dried at atmospheric
25 pressure for one and a half hours at 90°C and then for 1 hour at 90°C at an absolute pressure of 15 mbar. The oven temperature is then reduced to a value of 75°C and the drying is continued at an absolute pressure of 15 mbar for 2 hours. The drying is completed at 75°C
30 for 1 hour at an absolute pressure of 2 or 3 mbar.

A dried paste is obtained which is only slightly thick and compact, which is crushed and reduced to a powder. The flavouring agent obtained has a fine taste with excellent organoleptic qualities.

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Example 2

The reacted paste is prepared as described in example 1, but beef fat is used instead of chicken fat.

To this paste, 10% of native corn starch is added. After homogenisation the paste is filled on trays, trayloading 18 kg per m². The drying is carried out at 90°C for 1,5 hours without vacuum, then 2 hours at 90°C
5 with 15 mbar vacuum and as last step 1 hour at 90°C with 2 mbar vacuum.

The milled product dissolved in hot water at a concentration about 1%, has a boiled taste and smell.

Claims

1. Process for drying a flavouring agent paste obtained by thermal reaction of a pasty mixture comprising at least one free amino acid source and at least one reducing sugar, in which starch having a high gelatinization temperature is added to the paste as flavour carrier before it is dried.
2. Process according to Claim 1, in which, to dry the paste, it is heated at 85-95°C for 20 minutes to 2 hours at atmospheric pressure, and the heating is continued at 70-95°C for 3 to 6 hours under reduced pressure.
3. Process according to Claim 1 or 2, in which, after a thermal reaction of the pasty mixture of 1 minute to 6 hours at 80-150°C, the paste obtained is cooled to 60-70°C before adding to it 3 to 30% by weight of starch having a high gelatinization temperature.
4. Process according to one of Claims 1 to 3, in which the starch having a high gelatinization temperature is tapioca, maize or potato starch.
5. Process according to one of Claims 1 to 4, in which the heating is continued under reduced pressure in several stages, at generally decreasing absolute pressure values and at generally decreasing temperatures.
6. Process according to Claim 5, in which the heating is continued under reduced pressure in a first stage of 1 to 3 hours at 85-90°C, a second stage of 1-3 hours at 75-90°C at 15-30 mbar and a third stage of 20-90 minutes at 70 to 80°C at 2 to 15 mbar.
7. Process according to one of Claims 1 to 6, in which the free amino acid source is a vegetable or animal



protein hydrolysate or a yeast extract and the reducing sugar is a monosaccharide.

8. Process according to one of Claims 1 to 7, in which
5 the pasty mixture has a water content of 20 to 40% and the dried paste has a residual water content of 2-4%.

