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(54) **Title:** METHOD FOR MAKING FRESH PASTA AND PROCESS FOR PREPARING A PASTA-BASED DISH

(57) **Abstract:** A method for making fresh pasta, comprising the following steps: preparing uncooked pasta; immersing the pasta in water at a temperature which is determined by the properties of the pasta and ranging between about 25 °C and about 35°C, for a time interval determined by the properties of the pasta and ranging between about 35 minutes and about 15 minutes, respectively, so as to hydrate the pasta by soaking it; removing the soaked pasta from the water; placing a measured quantity of soaked pasta inside a package; closing the package, heating the package at a temperature and for a time interval such as to ensure the pasteurization of the measured quantity of soaked pasta contained in the package; cooling the package to cool the soaked pasta contained in it. In particular, between the step of preparing the pasta and the step of closing the package, the pasta is kept under conditions of non-gelatinization of the starch it contains, that is the pasta does not undergo any cooking treatment. A process for preparing a pasta-based dish.

## Description

### Method for making fresh pasta and process for preparing a pasta-based dish

#### Technical Field

The present invention relates to a method for making fresh pasta, of the type described in the preamble to claim 1.

5 The present invention also relates to a process for preparing a pasta-based dish.

As is known, the need has always been felt in the catering and food industry in general, to speed up the preparation of dishes - even if they are elaborate - and pasta in particular.

10 Different pasta varieties exist, for example fresh pasta, dry pasta and precooked pasta. However, it is known that dishes obtained from fresh pasta are those that ensure the highest quality level, both in terms of flavour and in maintaining the so-called "al dente" texture.

15 The preparation of a pasta-based dish and related sauce involves a step of cooking the fresh pasta in boiling water at about 100° for a predetermined period of time, according to the type of fresh pasta. By way of example, the cooking time will generally be longer for stuffed pasta and shorter for non-stuffed pasta.

20 Currently, given the abundance of ready-made sauces on the market, the step of cooking the pasta in boiling water at about 100°C is in fact the longest step in terms of time. Therefore, speeding up the step of cooking fresh pasta means speeding up the preparation of the final dish and hence increasing the number of portions which may be prepared in the unit of time. Obviously, the number of portions which may be prepared in the unit of time is an extremely important parameter for a catering business, as it is directly correlated with productivity and hence with the profits of the business.

25 However, it is also known that the need to speed up the preparation of dishes

obtained from fresh pasta conflicts with the need to ensure that a high quality level of the final dish is maintained.

### Background Art

5 In accordance with the prior art, processes are known for precooking fresh pasta with the aim of obtaining quick-cooking pasta to be used in the subsequent steps of preparing pasta-based dishes, with the object of speeding up the preparation.

10 The precooking of fresh pasta is a heat treatment which involves heating pasta in water at the cooking temperature for an interval of time which is less than the total time for cooking the fresh pasta. Typically, pasta is cooked following the gelatinization process of the starch which occurs by heating the pasta in a watery environment at a variable temperature between 60°C and 100°C, according to the variety of pasta (composition) and to its moisture content.

15 Following the precooking, the time required to cook the pasta when it is prepared for final consumption may be significantly reduced, by 50% or even more, as compared to the time required for non-precooked pasta.

The precooking of the pasta allows speeding up the preparation of the dish, thus increasing the productivity and profits of a catering business.

20 However, after precooking - whatever the method used - the pasta, following the gelatinization of the starch, completely loses the properties of fresh pasta and cannot be considered as such. Disadvantageously, the quality features of a dish obtained from precooked pasta are inferior to the ones obtained from fresh pasta.

25 Despite this, according to known art, different methods exist for precooking pasta in order to obtain quick-cooking pasta.

In accordance with document WO2002045526, the pasta is precooked in steam at a temperature ranging between 93°C and 100°C.

In document EP884000, the pasta is precooked in steam or boiling water.

30 In accordance with the known art described in document US5063072, pasta

is subjected to cooking for a time which is less than the normal cooking time, after having been also previously subjected to a heat drying treatment at a temperature of 82°C.

5 In document EP745331, the pasta is subjected to not one but two precooking heat treatments through heating with steam.

At the end of all the prior art precooking processes, a pasteurization treatment is performed on the final product. Disadvantageously however, the precooking of the pasta makes the pasteurization required to ensure an adequate shelf-life of the final product, particularly inconvenient. Indeed, although it is not  
10 technically a cooking process, the pasteurization treatment introduces a further heat treatment for the pasta, which already having been subjected to one or more precooking steps, inevitably deteriorates in terms of its organoleptic properties.

Therefore, the processes for making quick-cooking pasta based on the precooking of the pasta have the significant drawback of deteriorating the  
15 organoleptic properties of the pasta, which means that a dish obtained from precooked pasta has decidedly inferior quality properties than those of a dish obtained from fresh pasta.

Indeed, disadvantageously the precooking process involves water absorption by the pasta, resulting in increased weight and distribution of the crystalline  
20 structure of the starch contained in the pasta. Moreover, when the dish is prepared, the precooked pasta undergoes a further process of cooking in water or at least a further heating, which causes the further swelling and solubilisation of the starch with amylaceous particles rising to the surface of the pasta, thus resulting in the stickiness of the final product.

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#### Disclosure of the Invention

In this context, this invention is based on the aim to propose a method for making fresh pasta which overcomes the drawbacks of the above known art. In particular, the aim of the present invention is to provide a method for making fresh  
30 pasta with features such as to allow reducing the preparation time of the dishes, as

compared to the fresh pasta obtained with traditional methods.

Another aim of the present invention is to provide a method for making fresh pasta with features such as to maintain the "al dente" texture during the preparation for consumption.

5 A further aim of the present invention is to propose a method for making fresh pasta with a shelf-life of at least 30 days.

It is also an aim of the present invention to provide a process for quickly preparing a pasta-based dish.

10 These and other aims are all achieved by the present invention in a method for making fresh pasta and a process for preparing a pasta-based dish, which comprise the technical features described in one or more of the appended claims.

15 Further features and advantages of the invention are more apparent in the detailed description below, with reference to a preferred, non-limiting, embodiment of a method for making fresh pasta and of a process for preparing a pasta-based dish.

#### Description of the preferred embodiment

A method for making fresh pasta according to the present invention comprises the following steps:

- 20
- preparing uncooked pasta;
  - immersing the pasta in water at a temperature determined by the properties of the pasta, which are typically pasta thickness, dough composition, presence and composition of the filling, and ranging between about 25°C and about 35°C for a time interval determined by the properties of the pasta, which are typically pasta
- 25
- thickness, dough composition, presence and composition of the filling, and ranging between about 35 minutes and about 15 minutes, respectively, so as to hydrate the pasta by soaking it;
  - removing the soaked pasta from the water;
  - placing a measured quantity of soaked pasta into a package;
- 30
- closing the package;

- heating the package at a temperature and for a time interval such as to ensure the pasteurization of the measured quantity of soaked pasta contained in the package;

- cooling the package to cool the soaked pasta contained in it.

5 In particular, between the step of preparing the pasta and the step of closing the package, the pasta is kept under conditions of non-gelatinization of the starch it contains, that is the pasta does not undergo any cooking treatment.

Typically, pasta is cooked following the gelatinization process of the starch which occurs by heating the pasta in a watery environment at a variable temperature  
10 between 60°C and 100°C, according to the type of pasta (composition) and to its moisture content.

Therefore in accordance with the invention, “uncooked pasta” means pasta in which the starch has not undergone any gelatinization process in a watery environment. By way of example, “uncooked pasta” according to the invention may  
15 be fresh egg pasta, fresh wheat pasta or also dehydrated pasta (also called “dry pasta”).

Advantageously, the soaking process following the immersion step is slow and delicate and the temperature employed is not high enough to cause the starches to gelatinize. Therefore, at the end of the immersion step, the pasta obtained is  
20 soaked but is still fresh pasta.

In particular, the temperature values and time intervals for the immersion step will be selected within the intervals of the values indicated above, so that at the end of the immersion step, the soaked pasta has a moisture value ranging between about 40% and about 55% of the total weight of the pasta.

25 Preferably, the water used for the immersion step is neutral. Even more preferably, the water used for the immersion step comprises salt with a concentration of about 1.8% in weight and with no acidifying substance or additive. Advantageously, the use of water without acidifying substances or additives ensures the organoleptic properties of the fresh pasta are maintained.

30 The step of removing the soaked pasta is preferably followed by a step of

draining the pasta to eliminate the excess water.

After the step of removing the soaked pasta from the water, the method also comprises a step of sprinkling the soaked pasta with an oily substance to prevent the binding of the pasta – resulting in several pieces of pasta sticking together –  
5 following the swelling of the starch it contains.

The swelling of starch is a physical-chemical phenomenon comprising the penetration of water into the starch granules until they break, thus resulting in the granules spreading amylase and amylopectin in the water. Said substances give the water the properties of a colloidal starch solution, which has the effect of a sticky  
10 film on the pasta. In the present invention, the swelling of the starch is not a cooking process because it occurs at temperatures which are lower than the cooking temperature, that is under 60°C.

In accordance with the invention, oily substances (preferably vegetable oil or extra-virgin olive oil) are used for the sprinkling step. Advantageously, the low  
15 temperature of the immersion water – maximum 35°C – allows the use of oils that are easy to find and have contained costs, because the risk toxic substances or fumes developing does not exist and therefore the use of oils with special chemical and physical properties is not required.

Before the step of closing the package, the method according to the invention  
20 comprises a step of extracting air from the package until a pressure is reached in the package which does not exceed about 60% of atmospheric pressure. Preferably, the package is a bag made of plastic which is suitable for food use, for example polyethylene terephthalate (abbreviated PET).

Advantageously, this pressure value ensures increased shelf-life of the product  
25 on the one hand, while on the other preventing excessive compression of the package, which would result in the crushing of the pasta, with negative effects in terms of appearance.

In accordance with the preferred embodiment, the step of heating the package to pasteurize the pasta is performed at a temperature and for a time interval such that  
30 a temperature of at least 90°C is reached for at least 10 minutes, or the equivalent

F(90), at the core (or “heart”) of the pasta. In particular, the step of heating the package is performed at a temperature ranging between 90°C and about 113°C for a time interval ranging between about 75 minutes and about 15 minutes, respectively.

5 The heating process for performing the pasteurization is not a cooking process because the pasta is not immersed in a moist environment and is not even hit by hot steam, given that it is already packaged. In essence, pasteurization is only required to ensure an adequate shelf-life of the final product.

10 In accordance with the invention, the step of cooling the package, which is subsequent to the pasteurization step, is performed so as to bring the pasta to a temperature ranging between about 0°C and about 4°C, preferably 3°C, in a time interval ranging between about 90 minutes and about 55 minutes, respectively, preferably 60 minutes. Advantageously, the cooling step prevents the formation and proliferation of micro-organisms.

15 The fresh pasta obtained from a method according to the invention achieves the aim of allowing the quick preparation of a pasta-based dish because it may be eaten without any prior step of immersing and cooking in boiling water. Indeed, given that the pasta is pre-soaked, a heating step is sufficient in a moist environment at the cooking temperature (typically higher than 60°C) for a time ranging between 30 seconds and 2 minutes to activate the gelatinization of the starches and therefore  
20 cause the pasta to cook. The heating step may be performed, for example, through hot steam which is developed starting from a sauce mixed with the pasta and having a predetermined degree of moisture.

A process for preparing a pasta-based dish according to the present invention, comprises the following steps:

- 25
- preparing fresh pasta obtained from the above-described method for making it;
  - pouring a sauce having a predetermined degree of moisture, into a container;
  - placing the pasta in the container;
  - heating the container for a time interval such that the heat absorbed by the  
30 moisture in the sauce is transferred to the pasta, that is until the pasta is cooked,

without prior immersion of the pasta in boiling water. Preferably, said time interval is at least 30 seconds and even more preferably, is between 30 seconds and 2 minutes.

5 In accordance with the invention, the heating of the container, preferably a wok pan, occurs through an electromagnetic induction plate.

According to an embodiment variant, the heating step may occur through a microwave oven.

In essence, given that it is pre-soaked, the pasta is cooked by the heat carried by the moisture in the sauce and does not need to be immersed in boiling water.

10 The invention has further important advantages.

Firstly, the fresh pasta obtained from a method according to the invention allow dishes to be prepared very quickly and remains “al dente”.

15 Advantageously, a process for preparing a pasta-based dish in accordance with the invention, allows the productivity of a catering business to be increased without reducing the quality properties of the pasta, which remain the typical ones of fresh pasta.

Claims

1. A method for making fresh pasta, comprising the following steps:
  - preparing uncooked pasta;
  - immersing the pasta in water at a temperature which is determined by the properties of the pasta and ranging between about 25°C and about 35°C, for  
5 a time interval determined by the properties of the pasta and ranging between about 35 minutes and about 15 minutes, respectively, so as to hydrate the pasta by soaking it;
  - removing the soaked pasta from the water;
  - placing a measured quantity of soaked pasta into a package;
  - 10 - closing the package;
  - heating the package at a temperature and for a time interval such as to ensure the pasteurization of the measured quantity of soaked pasta contained in the package;
  - cooling the package to cool the soaked pasta contained in it,
  - 15 characterized in that, between the step of preparing the pasta and the step of closing the package, the pasta is kept under conditions of non-gelatinization of the starch it contains, that is the pasta does not undergo any cooking treatment.
2. A method according to claim 1, wherein the water for the immersion step  
20 is neutral.
3. A method according to claim 1, wherein the water for the immersion step comprises salt with a concentration of about 1.8% in weight.
- 25 4. A method according to any one of the preceding claims, comprising, after the step of removing the soaked pasta from the water, a step of sprinkling the soaked pasta with an oily substance to prevent the binding of the pasta following the swelling of the starch it contains.

5. A method according to any one of the preceding claims comprising, before the step of closing the package, a step of extracting air from the package, until a pressure is reached in the package which does not exceed about 60% of atmospheric pressure.

5

6. A method according to any one of the preceding claims, wherein the step of heating the package is performed at a temperature and for a time interval such as to ensure a temperature of at least 90°C for at least 10 minutes is reached, or the equivalent F(90), at the core of the pasta.

10

7. A method according to any one of the preceding claims, wherein the step of heating the package is performed at a temperature ranging between 90°C and about 113°C for a time interval ranging between about 75 minutes and about 15 minutes, respectively.

15

8. A method according to any one of the preceding claims, wherein the step of cooling the package is performed so as to bring the pasta to a temperature ranging between about 0°C and about 4°C, preferably 3°C, in a time interval ranging between about 90 minutes and about 55 minutes, preferably 60 minutes, respectively.

20

9. A method according to any one of the preceding claims, comprising, after the step of removing the soaked pasta, a step of dripping the pasta to eliminate the excess water.

25

10. A method according to any one of the preceding claims, wherein the temperature and time duration values of the immersion step are selected within the aforesaid temperature and time intervals, so that at the end of the immersion step, the soaked pasta has a moisture value ranging between about 40% and about 55% of the total weight of the pasta.

30

11. A non-precooked, packaged pasta obtained from a method according to any one of the preceding claims.
12. A process for making a pasta-based dish, characterized in that it comprises  
5 the following steps:
- preparing fresh pasta obtained from a method according to any one of the preceding claims from 1 to 10;
  - pouring a sauce having a predetermined degree of moisture, into a container;
  - placing the pasta in the container;

10

  - heating the container for a time interval such that the heat absorbed by the moisture in the sauce is transferred to the pasta, that is, until the pasta is cooked, without first immersing the pasta in boiling water.
13. A process according to claim 12, wherein the time interval is at least 30  
15 seconds.
14. A process according to either claim 12 or 13, wherein the heating step occurs through an electromagnetic induction plate.
- 20 15. A process according to either claim 12 or 13, wherein the heating step occurs through a microwave oven.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/IT2012/000067

A. CLASSIFICATION OF SUBJECT MATTER  
INV. A23L1/16  
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, FSTA, 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 5 063 072 A (GILLMORE STEPHEN R [US] ET AL) 5 November 1991 (1991-11-05) claims; examples column 2, line 45 - column 16, line 27 -----	1-15
X	EP 0 745 331 A2 (NESTLE SA [CH]) 4 December 1996 (1996-12-04) claims; examples -----	11-15
X	EP 0 884 000 A2 (FEED UP INC [JP]) 16 December 1998 (1998-12-16) the whole document -----	11-15
X	WO 02/45526 A2 (BESTFOODS [US]; BESTFOODS DE GMBH & CO OHG [DE]) 13 June 2002 (2002-06-13) the whole document -----	11-15
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Further documents are listed in the continuation of Box C.

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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"&" document member of the same patent family

Date of the actual completion of the international search  15 October 2012	Date of mailing of the international search report  19/10/2012
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Bondar, Daniela
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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/IT2012/000067

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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X	EP 0 416 825 A2 (BORDEN INC [US]) 13 March 1991 (1991-03-13) the whole document -----	11-15

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IT2012/000067

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