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SUPERINDUSTRIA Y COMERCIO

Radicacion : 00043429 00010001

Fecha (AMD): 2004-09-03 17:00:25

Tramite : 002 PATENTES D 332 PRESENTAC 329 COMPLENE

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

Folios: 6

Señor

SUPERINTENDENTE DE INDUSTRIA Y COMERCIO

DIVISION DE NUEVAS CREACIONES

E. _____ S. _____ D. _____

Re: P1.-SOCIETE DES PRODUITS NESTLÉ S.A.-Expediente
número 00-043.429.-

1. Me refiero al memorial de sustitución de poder presentado a ese Despacho el 31 de Agosto de 2004.

2. Por medio del presente, atentamente me permito manifestar a ese Despacho, que hubo un **cambio** de Representante Legal para todos los asuntos de la Propiedad Industrial en Bogotá de **SOCIETE DES PRODUITS NESTLÉ S.A.**, una sociedad organizada y existente de conformidad con las leyes de Suiza, domiciliada en Vevey, Suiza.

3. En consecuencia, atentamente solicito a ese Despacho reconocerme personería, en este asunto, de conformidad con el documento de Representación Legal para todos los asuntos de la Propiedad Industrial en Bogotá de la sociedad **SOCIETE DES PRODUITS NESTLÉ S.A.**, otorgado a favor del **SUSCRITO (GUSTAVO TAMAYO)** y/o a la doctora ALICIA LLOREDA y/o al doctor IGNACIO SANTAMARIA y/o ENRIQUE ALVAREZ de acuerdo con la copia debidamente autenticada ante Notario Público que adjunto al presente expediente (Artículos 26 y 39 de la Decisión 486 de la Comunidad Andina de Naciones).

4. Anexo al presente acompaño fotocopia, de:

- (a) Documento que acredita al SUSCRITO y/o a la doctora ALICIA LLOREDA y/o al doctor IGNACIO SANTAMARIA y/o ENRIQUE ALVAREZ en los términos del parágrafo 1º. del Artículo 543 del Decreto-Ley 410 de 1971, como Representantes Legales en Bogotá para todos los asuntos relacionados con la propiedad industrial de la sociedad **SOCIETE DES PRODUITS NESTLÉ S.A.**, una sociedad organizada y existente de conformidad con las leyes de Suiza, domiciliada en Vevey, Suiza.

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(b) Certificación Notarial expedida el 11 de Agosto de 2004; y

(c) Traducción Oficial No. 284/04 correspondiente a las partes pertinentes del documento anterior, también debidamente legalizada hasta por el Ministerio de Relaciones Exteriores bajo el número 061225 de 2 de Septiembre de 2004.

5. Finalmente, llamo la atención de ese Despacho al hecho de que la copia auténtica del documento que me acredita para actuar como Representante Legal de la sociedad peticionaria, reposa en el Expediente número **98-034.405**.

6. Ruego a usted tomar atenta nota de lo anterior y continuar con el trámite correspondiente.

Señor Superintendente,


GUSTAVO TAMAYO
T.P. 37.172
Código 231

88 94

TRADUCCIÓN OFICIAL No.284/04 DE UN DOCUMENTO ESCRITO EN FRANCÉS, EL CUAL PARA SU IDENTIFICACIÓN SE SELLA CON EL SELLO DEL TRADUCTOR. ESTA ES UNA TRADUCCIÓN OFICIAL EFECTUADA EL DIA 01 DE SEPTIEMBRE DE 2004 POR JEAN-JACQUES TURPIN, C.E.: 193849 DE BOGOTÁ, TRADUCTOR E INTÉRPRETE OFICIAL SEGÚN RESOLUCIÓN No. 2680/91 DEL 19 DE DICIEMBRE DE 1991, EXPEDIDA POR EL MINISTERIO DE JUSTICIA DE COLOMBIA.

Autenticaciones que se hallan a continuación de un documento de poder conferido en inglés y español por **SOCIÉTÉ DES PRODUITS NESTLE S.A.**, una sociedad organizada y existe de conformidad con las leyes de Suiza, domiciliada en Vevey, Suiza, y otorgado a los Doctores ALICIA LLOREDA y/o GUSTAVO TAMAYO y/o IGNACIO SANTAMARÍA y/o ENRIQUE ÁLVAREZ, todos domiciliados en Bogotá, Colombia, Calle 72 No. 5 – 83 (Piso 6°).

Dado el 5 de agosto de 2004. Firma ilegible de la Señora Paula Nelson, con firma autorizada.

CERTIFICADO NOTARIAL (SOCIEDAD)

Legalización por parte del suscrito Notario de la firma de la Señora **Paula NELSON** quien desempeña el cargo de (en blanco) de la compañía **SOCIÉTÉ DES PRODUITS NESTLE S.A.**, una sociedad legalmente constituida y existente de acuerdo con las leyes de **Suiza**, domiciliada en **Vevey (Suiza)**. Además, dicho Notario certifica que el signatario, según las leyes de **Suiza**, tiene facultad para otorgar el presente documento. Los hechos anteriores le constan por haber examinado los documentos respectivos el 13 de junio de 1997, y de todo ello da fe.

Firma de Jean-Daniel RUMPF. Sello: Jean-Daniel RUMPF – Notario.

284/04

Traducción Oficial No.
JEAN - JACQUES H. TURPIN
Traductor e Intérprete Oficial
FRANCOIS - ESPANOL
Res. Minjusticia No. 2680/91

89 95

Legalización No. 7.136. El Notario Jean-Daniel RUMPF, en Vevey, Distrito de Vevey, Cantón de Vaud, Suiza, certifica la firma puesta en la página anterior por la Señora Paula Nelson, quien compromete en forma válida con su firma individual a la SOCIÉTÉ DES PRODUITS NESTLE S.A. en Vevey.

Dado en Vevey, el once de agosto de dos mil cuatro. Firma ilegible del Notario.

Sello: Jean-Daniel RUMPF – Notario. Estampilla de 4 Frs.

APOSTILLA

(Convención de La Haya del 5 de octubre de 1961)

1. - País: Suiza

El presente documento público

2. - ha sido firmado por el Señor Jean-Daniel RUMPF

3. - obrando en calidad de Notario en Vevey

4. - con sello de Jean-Daniel RUMPF, Notario

CERTIFICADO

5. - En Lausana

6.- El 12 de agosto de 2004

7. - Por la Cancillería de Estado del Cantón de Vaud

8. - Bajo el número 6706

9. - Sello: Cancillería del Consejo de Estado – Libertad y Patria - Emolumento de 25 Fr.

10. - Por el Canciller de Estado, firma de P. Equey.

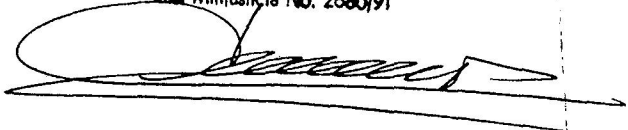
Es traducción fiel y completa de la cual se deja copia en los archivos de esta oficina para confrontación y a la cual me remito.

Traducción oficial No. 284/04.

Traductor: Jean-Jacques Turpin.

Bogotá, D.C., 1 de septiembre de 2004.

Traducción Oficial No. 284/04
JEAN - JACQUES H. TURPIN
Traductor e Intérprete Oficial
FRANCOIS - ESPANOL
Res. Minijusticia No. 2680/91



MINISTERIO DE RELACIONES
EXTERIORES
Juan Diego
61225
CUYA FIRMA APARECE EN EL
DOCUMENTO DESEMPENA
LAS FUNCIONES INDICADAS

NO SE ASUME
RESPONSABILIDAD DEL TEXTO
2004 SEP - 2 A 11: 08
MS
JEFE DE LEGALIZACIONES
SANTAFE DE BOGOTA D.C.

Los abajo firmados, **SOCIETE DES PRODUITS NESTLE S.A.**, una sociedad organizada y existente de conformidad con las leyes de Suiza

con domicilio en **Vevey, Suiza**

nombramos por el presente a ALICIA LLOREDA y/o GUSTAVO TAMAYO y/o IGNACIO SANTAMARIA y/o ENRIQUE ALVAREZ, domiciliados en Bogotá, Colombia, con oficinas en dicha ciudad, Calle 72 No. 5-83, piso 6o., nuestros representantes legales y verdaderos en Bogotá, con facultades para recibir notificaciones y nombrar apoderados judiciales o extrajudiciales, con el fin de dar cumplimiento al parágrafo 1o. del artículo 543 del decreto 410 de 1971.

Los doctores ALICIA LLOREDA y/o GUSTAVO TAMAYO y/o IGNACIO SANTAMARIA y/o ENRIQUE ALVAREZ, o los apoderados que cualquiera de ellos designe, quedan especialmente facultados para representarnos ante las autoridades colombianas, administrativas, judiciales o de policía, en todos los trámites relativos a la propiedad industrial, a cuyo efecto les facultamos para dar ante dichas autoridades todos los pasos necesarios al objeto indicado; elevar solicitudes, declaraciones, reclamos, recursos y presentar desistimientos; formular descripciones, enmiendas, limitar el alcance de las solicitudes, presentar oposiciones y apelaciones; instaurar cancelaciones, renunciar total o parcialmente a los registros, abonar todos los impuestos y cuotas y efectuar todo otro pago determinado por la ley; recibir todos los documentos y valores, dando el descargo respectivo; llenar cualesquiera otros requisitos y tomar, en fin, todas las medidas que creyeran conducentes al resguardo de nuestros intereses; y en caso de producirse oposición, pasando los antecedentes a los tribunales, quedan facultados para tomar intervención como demandantes o demandados ante los jueces que sean competentes, pudiendo transar, someter a arbitros, desistir, percibir y apelar, con todas las demás facultades que resulten necesarias, y por el presente declaramos desde ahora válido y bueno cuanto dichos representantes y/o los apoderados que cualquiera de ellos nombre hicieren en nuestro beneficio.

Asimismo, facultamos a los doctores ALICIA LLOREDA y/o GUSTAVO TAMAYO y/o IGNACIO SANTAMARIA y/o ENRIQUE ALVAREZ, para solicitar en la Oficina de Propiedad Industrial la protocolización de este documento y de cualquier poder que cualquiera de ellos otorgue a nombre nuestro.

Dado y firmado

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The undersigned, **SOCIETE DES PRODUITS NESTLE S.A.**, a corporation organized and existing under the laws of Switzerland.

domiciled at **Vevey, Switzerland**

hereby appoint, ALICIA LLOREDA and/or GUSTAVO TAMAYO and/or IGNACIO SANTAMARIA and/or ENRIQUE ALVAREZ, of Bogota, Colombia, with offices in said town, Calle 72 No. 5-83, Sixth Floor, our true and legal representatives in Bogotá, with power to receive notifications and to appoint judicial or extrajudicial agents, so as to comply with paragraph 1o. of article 543 of decree 410 of 1971.

Doctors ALICIA LLOREDA and/or GUSTAVO TAMAYO and/or IGNACIO SANTAMARIA and/or ENRIQUE ALVAREZ, or the agents by any one of them appointed, are especially empowered to represent us before the administrative, judicial or police authorities of Colombia, in all proceedings pertaining to industrial property, for which purpose we authorize them to take before the said authorities all the necessary steps for the said end; to file petitions, declarations, claims, recourses and withdrawals, to draw up specifications; to file amendments, to limit the scope of applications, file oppositions; file cancellations total or partially waive registrations, to pay all installments and effect all other payments prescribed by law; to receive proper receipts, to comply with all other requirements and, in short, to take all those measures which they may deem fit for the protection of our interests; and in case of opposition, where the proceedings be passed over to the courts, we authorize said agents to act on our behalf, as complainants as well as defendants, before the competent judges, with full powers to make arrangements, to submit to arbitrators, to desist, to collect, to appeal and, in short, with all such further powers as may be required, and we hereby declare from now on as valid and good all that said representatives and/or the agents by any one of them appointed may do for our benefit.

We also authorize doctors ALICIA LLOREDA and/or GUSTAVO TAMAYO and/or IGNACIO SANTAMARIA and/or ENRIQUE ALVAREZ, to apply for protocolization of this document and of any power of attorney by any one of them conferred in our name, before the Office of Industrial Property.

Given and signed this (date): 5th August 2004

Paula NELSON - Authorized Signatory



NOTARY SHOULD EXECUTE OTHER SIDE

CERTIFICADO NOTARIAL (SOCIEDAD)

Suiza
Vevey

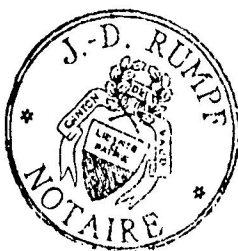
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Hoy 11 de Agosto de 2004
compareció

PAULA NELSON

a quien conozco y de quien me consta que firmó el anterior documento, y quien debidamente juramentado declaró y dijo que él es la persona autorizada por suscribir documentos de **SOCIETE DES PRODUITS NESTLE S.A.**, la compañía nombrada en el documento que antecede, una sociedad debidamente organizada y existente conforme a las leyes de **Suiza**, domiciliada en la ciudad de **Vevey, Suiza** legalmente constituida para un período de duración que aún no ha terminado, que ejerce su objeto social; conforme a las leyes de **Suiza**, que el declarante está autorizado por dicha Compañía para conferir este poder; que el sello estampado por él alie de tal poder, en nombre y en representación de la expresada Compañía, es el sello oficial de ella; y que el objeto para el cual se confiere este instrumento está comprendido dentro del de la sociedad. El suscrito Notario ha visto los Estatutos de incorporación firmados en **Vevey, Suiza**, con fecha **Noviembre 27, 1936**, y certifica que de conformidad con la legislación de dicho País, la anterior declaración juramentada es prueba suficiente de que los hechos sobre que ella versa son ciertos o verdaderos, de lo cual da fe.

Notary Public (Notario Público).



NOTARIAL CERTIFICATE (CORPORATION)

Switzerland
Vevey

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On this 11th day of August, 2004,
personally came

Paula NELSON

to me known, and known to me to be the person who signed the foregoing instrument, who being by me duly sworn did depose and say that he/she is the *Authorized Signatory* of **SOCIETE DES PRODUITS NESTLE S.A.**, the company named within, a Corporation organized and existing under the laws of the **Switzerland**, domiciled at the City of **Vevey, Switzerland** legally constituted for a period of tenure not yet expired, which exercises its corporate purposes according to the laws of **Switzerland**, that the deponent is authorized by said Company to confer this power of attorney; that the seal affixed hereunto by the deponent in the name and on behalf of said Corporation is the corporate seal thereof; and that the purpose for which this instrument is granted is included within the corporate purposes of the Company.

The undersigned Notary Public has seen the articles of Incorporation of said Corporation executed at **Vevey, Switzerland**, under date of **November 27, 1936**, and hereby certifies that under the laws of said County the foregoing acknowledgment is sufficient proof that the facts therein contained are true, which he attests. 1 June 13, 1997

J.D. Rumpf

Légalisation No 7'136.-

Le notaire JEAN-DANIEL RUMPF, à Vevey, District de Vevey, Canton de Vaud, Suisse, certifie authentique la signature apposée d'autre --- part par Mme Paula NELSON, laquelle engage valablement la SOCIETE - DES PRODUITS NESTLE SA, à Vevey, par sa signature individuelle. ----
VEVEY, LE ONZE AOÛT DEUX MILLE QUATRE. -----



J.D. Rumpf

APOSTILLE

(Convention de La Haye du 5 octobre 1961)

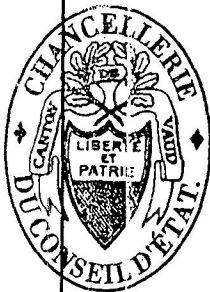
1. Pays: SUISSE

Le présent acte public

2. a été signé par Jean-Daniel Rumpf

3. agissant en qualité de notaire à Vevey

4. est revêtu du sceau/timbre de J.-D. Rumpf notaire



Attesté

5. à Lausanne 6. le 12 août 2004

7. par la Chancellerie d'Etat du Canton de Vaud

8. sous No 6706

9. Sceau/timbre:

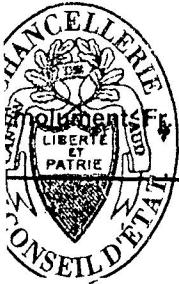
10. Signature

pr le Chancelier d'Etat:

P. Equey

P.Equey

25.-



Hydrolysed cereal containing fruit or honey - EP 0779038



US006017569A

D1 92
99

United States Patent [19]
Badertscher

[11] **Patent Number:** **6,017,569** = EP 0779038
[45] **Date of Patent:** **Jan. 25, 2000** (1997-06-18)

[54] **HYDROLYZING CEREAL WITH FRUIT OR HONEY PRESENT AND APPARATUS THEREFOR**

FOREIGN PATENT DOCUMENTS

0619083A1 3/1994 European Pat. Off. .

[75] **Inventor:** Ernest Badertscher, Orbe, Switzerland

OTHER PUBLICATIONS

[73] **Assignee:** Nestec S.A., Vevey, Switzerland

Whistler, et al., Ed., Starch: Chemistry and Technology, vol. II, Industrial Aspects, Academic Press, N.Y., 1967, pp. 147, 153-157.

[21] **Appl. No.:** 08/752,351

Primary Examiner—Donna Wortman

[22] **Filed:** Nov. 19, 1996

Assistant Examiner—Brenda G. Brumback

[30] **Foreign Application Priority Data**

Attorney, Agent, or Firm—Vogt & O'Donnell, LLP

Nov. 20, 1995 [EP] European Pat. Off. 95203172

[57] **ABSTRACT**

[51] **Int. Cl.⁷** A23L 1/164

[52] **U.S. Cl.** 426/28; 426/18; 426/49; 426/52; 426/618; 426/619; 426/620; 426/621

[58] **Field of Search** 426/18, 44, 28, 426/49, 52, 618-621

A hydrolyzed cereal product containing honey or whole fruit or pieces of fruit is obtained by preparing a mixture of cereal flour and *alpha*-amylase and also honey or fruit, the fruit being whole or in pieces, passing a stream of the mixture through an assembly so that the mixture is treated successively by jets of steam which are injected to envelope the mixture stream to heat the stream first to hydrolyze starch of the cereal flour and so that after the first steam-treatment, wherein the steam jet may be directed to the mixture stream co- or counter-currently, the subsequent successive steam jet or jets are directed to the hydrolyzed product stream counter-currently. Apparatus for carrying out the process includes two nozzles which have conically-shaped ends positioned to form a channel which communicates which a steam-supply passage of a T-shaped body.

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,219,483	11/1965	Goos et al.	127/28
3,870,803	3/1975	Siems et al. .	
4,089,984	5/1978	Gilbertson	426/293
4,374,860	2/1983	Gasser et al. .	
4,834,988	5/1989	Karwowski et al.	426/20
4,857,356	8/1989	Reinl et al. .	
4,900,565	2/1990	Spies	426/88
5,395,569	3/1995	Radertscher et al. .	

12 Claims, 2 Drawing Sheets

HYDROLYZING CEREAL WITH FRUIT OR HONEY PRESENT AND APPARATUS THEREFOR

BACKGROUND OF THE INVENTION

The present invention relates to hydrolyzed cereals containing fruit or honey and to processes and apparatus for preparation of the same.

The manufacture of hydrolyzed cereals has been known for a long time.

European Patent Application Publication No. 0 258 486 EP 258486 describes, in particular, a process for preparing hydrolyzed cereals with added fruits, in which 20 to 25% of enzymatically hydrolyzed cereals are first prepared and then mixed with oatmeal, with water and with at least 50% fruit. The mixture is then heated, it is degassed and it is subjected to a post-heating stage, before packaging it in glass containers which are pasteurized.

The dry matter content of the fruits is very low. It is in general of the order of 10 to 15%. This poses problems in the preparation of hydrolyzed cereals with added fruits since it increases the duration and the cost of drying and, furthermore, this impairs the quality of the product.

Honey often contains many spores. This poses problems during the preparation of hydrolyzed cereals with added honey, because if the honey is added just before the sterilization stage, the increase in the bacterial load through germination of the spores during the sterilization stage is not prevented.

SUMMARY OF THE INVENTION

The subject of the present invention is to provide a process for preparing hydrolyzed cereals with added fruits or honey as well as an apparatus for carrying out the process under particularly simple conditions which make it possible to avoid the problems stated above.

To this end, in the process for preparing hydrolyzed cereals with added fruits or honey according to the present invention:

a mixture is prepared comprising a cereal flour, whole fruits and/or fruit pieces and an *alpha*-amylase, or a mixture comprising a cereal flour, honey, water and an *alpha*-amylase to hydrolyze starch of the cereal flour to provide a hydrolysis product.

the mixture is treated by injecting steam in successive stages in successive treatment zones in series, the steam being injected in the form of an annular jet enveloping the mixture, counter-current to or co-current with the direction of the stream of mixture in a first zone and counter-currentwise in the following zones, with the quantity of steam decreasing from stage to stage and, then the mixture is dried.

The apparatus according to the present invention comprises, mounted in series, at least 2 steam injecting devices, each comprising a product injection nozzle part and a product ejection nozzle part and each having an inner section initially convergent and then divergent, which are placed one after the other in a straight tube of a T-shaped body, characterized in that a downstream end of the injection nozzle has a conical inner surface opening out towards the downstream end, an upstream end of the ejection nozzle has a conical outer surface converging towards the upstream end, the said upstream end of the ejection nozzle penetrates into the downstream end of the injection nozzle, and both ends delimit between them a conical steam injection passage

converging and opening out through an annular outlet orifice in the product injection nozzle and having an annular inlet orifice adjacent to a tubular arm of the T-shaped body.

It has been observed, surprisingly, that such a process and such an apparatus effectively make it possible to increase the dry matter content of the mixture by directly hydrolyzing the cereal flour mixed with the fruits while avoiding damaging the whole fruits or fruit pieces by treating the mixture by injecting steam in successive stages and counter-currentwise.

Furthermore, it has been observed, surprisingly, that such a process and such an apparatus effectively make it possible to obtain hydrolyzed cereals with added honey which are free of bacterial load by directly hydrolyzing the cereal flour mixed with the honey and by sterilizing the mixture by injecting steam, in successive stages, counter-currentwise. Indeed, during hydrolysis of the mixture, the spores contained in the honey germinate and, during sterilization, all this bacterial load is removed.

DETAILED DESCRIPTION OF THE INVENTION

To carry out the process according to the present invention, a mixture is preferably prepared having a water content of 40-80%.

In a first preferred embodiment of the present process, a mixture may be prepared comprising, in % by weight of dry matter, 15-45% of fruits and 85-55% of cereal flour for example.

In a second preferred embodiment of the present process, a mixture may be prepared comprising 15-25% of honey, 40-50 % of water and 30-40% of cereal flour for example.

Preferably, a mixture is prepared comprising 0.05 to 0.2 g of *alpha*-amylase per 100 g of cereal flour dry matter. There may be used especially as *alpha*-amylase that marketed under the name DEXLO P by Gist-Brocades N.V., Food Ingredient Division, P.B. 01, NL-260 MA DELFT.

The said mixture is therefore treated by passing the mixture in a direction through successive treatment zones and injecting steam in successive stages in the successive treatment zones, the steam being injected in the form of an annular jet enveloping the mixture, counter-current to or co-current with the direction of the stream of the mixture in a first zone and counter-currentwise in the following zones.

The fact that the steam may be injected into a first treatment zone in the direction of the stream of the mixture, i.e., co-currently whereas in the following zones it can be injected counter-currently to the mixture, is to avoid damaging, where appropriate, the relatively fragile fruit pieces and/or whole fruits for example.

Preferably, the mixture is treated with a quantity of steam which decreases from stage to stage, starting with a temperature of 80-100° C., which is favourable to the hydrolysis, up to a temperature of 120-150° C., which is necessary for the sterilization and for the inactivation of the enzymes.

At each stage, the steam injecting device is connected to the principal steam inlet conduit by a tubular arm. The opening of the steam injection nozzles decreases from stage to stage, so as to gradually reduce the quantity of steam injected between the first and the last stage.

In the first preferred embodiment of the present process, the mixture preferably crosses the successive treatment zones in the form of a cylindrical stream with a diameter greater than the size of the whole fruits and/or fruit pieces, so as not to damage the whole fruits and/or fruit pieces.

Finally, the mixture can be dried especially by freeze-drying, in the case of a mixture comprising a cereal flour and whole fruits and/or fruit pieces or by spraying, in the case of a mixture comprising a cereal flour, honey and water for example.

In the first preferred embodiment of the present process, the fruits may be chosen from a group comprising raspberries, strawberries and cherries for example.

Preferably, in a preferred embodiment of the present process, the pH of the fruits is adjusted to a value of between more than 5 and 6.5 by preparing the mixture in the presence of an alkali metal salt, so as to be able directly to hydrolyze the cereal flour with the fruits with *alpha*-amylase at optimum pH. Trisodium phosphate may be used as alkali metal salt for example.

Preferably, the mixture comprising a cereal flour and whole fruits and/or fruit pieces is then acidified to pH 3-5 before drying with an alkali salt, so as to restore the colour of the fruits which they might have lost because of the increase in their pH to a value of between more than 5 and 6.5. The mixture may be acidified with citric acid monohydrate for example.

The apparatus used according to the present invention is described in greater detail below with reference to the accompanying drawings:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a general schematic view of an embodiment of the apparatus.

FIG. 2 is a longitudinal cross section of a steam injecting device of the apparatus represented in FIG. 1.

DETAILED DESCRIPTION OF THE DRAWINGS

The embodiment of the apparatus represented in FIG. 1 comprises four steam injecting devices (1,2,3,4) mounted in series.

Each steam injecting device comprises a product injection nozzle (11,21,31,41) and a product ejection nozzle (12,22,32,42).

Each steam injecting device has a tubular arm (13,23,33,43) connected to the principal steam inlet conduit (5) provided with a control valve (6). The first steam injecting device is connected to the reservoir (7) provided with a mixer (8), in which the mixture is prepared comprising a cereal flour (A), whole fruits or fruit pieces or honey and water (B) and an *alpha*-amylase (C).

The last steam injecting device is connected to the drying device (9).

As can be seen in FIG. 2, the steam injecting device comprises a product injection nozzle (11) and a product ejection nozzle (12) one after the other in the straight tube (10) of the T-shaped body, as well as a tubular arm (13) which provides a passage allowing the inlet of steam through the annular orifice (16). The straight tube (10) is provided with an adjusting nut (14) and with a forcing nut (15).

The upstream end (18) of the product ejection nozzle (12) penetrates into the downstream end (17) of the product injection nozzle (11). As indicated in the Summary above and as shown in drawing FIG. 2, the downstream end (17) of the injection nozzle (11) has a conical inner surface opening out towards the downstream end. The upstream end (18) of the ejection nozzle (12) has a conical outer surface converging towards the upstream end. The conical surfaces

of the two ends delimit between them a conical steam injection passage (19) opening out to and communicating with a steam outlet orifice from the passage (19). Additionally, as also illustrated in drawing FIG. 2, each of the nozzles (11) and (12) has an interior surface which extends longitudinally and has a shape which defines first and second portions wherein the first portion (upstream), along its longitudinal extent, converges and extends downstream to the second portion and wherein the second portion, along its longitudinal extent away from the first portion, diverges.

EXAMPLES

The product according to the present invention is described in greater detail in the examples below where the percentages and parts are given by weight.

Example 1

Using an apparatus such as that represented in the drawings, hydrolysed cereals with added raspberries are produced.

A mixture is prepared in the reservoir comprising 72 kg of wheat flour (87% dry matter), 199 kg of fresh raspberries (13% dry matter), 0.1 kg of *alpha*-amylase DEXLO P and 5 kg of trisodium phosphate.

The mixture has a water content of 66% and a pH of 5.7.

The mixture thus prepared is treated by injecting steam in four stages with the quantity of steam decreasing from stage to stage. In the first steam injecting device, the temperature is 90° C., so as to allow the hydrolysis and, then in the other three steam injecting devices, the temperature increases gradually up to 130° C., so as to allow sterilization of the mixture without damaging the raspberry pieces.

After sterilization, the mixture is cooled to 65° C. and the mixture is acidified to pH 4 by adding 5 kg of prediluted citric acid monohydrate to it.

Finally, the mixture is dried by freeze-drying.

A mixture of hydrolyzed cereals with added raspberries is thus obtained whose composition is the following:

protein	10.3%
fat	1.4%
carbohydrate	66.7%
fibre	12.3%
ash	6.3%
water content	3%

Example 2

Using an apparatus such as that represented in the drawings, hydrolysed cereals with added black cherries are produced.

A mixture is prepared in the reservoir comprising 63 kg of wheat flour (87% dry matter), 202 kg of stoned black cherries (19.8% dry matter), 0.1 kg of *alpha*-amylase DEXLO P and 1.4 kg of trisodium phosphate.

The mixture has a water content of 63.7% and a pH of 5.5.

The mixture thus prepared is treated by injecting steam in four stages with the quantity of steam decreasing from stage to stage. In the first steam injecting device, the temperature is 90° C., so as to allow the hydrolysis and, then in the other three steam injecting devices, the temperature increases gradually up to 130° C., so as to allow sterilization of the mixture without damaging the cherry pieces.

After sterilization, the mixture is cooled to 65° C. and the mixture is acidified to pH 4.2 by adding 1.7 kg of prediluted citric acid monohydrate to it.

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Finally, the mixture is dried by freeze-drying.
Hydrolysed cereals with black cherries are obtained whose composition is the following:
protein 7.9%
fat 0.9%
carbohydrate 79.8%
fibre 5.6%
ash 2.7%
water content 3%

Example 3

Using the apparatus as represented in the drawings, hydrolysed cereals with added honey are prepared.

To this end, a mixture comprising 72.8 kg of flour, 43.1 kg of Mexican honey, 100.4 kg of water and 0.1 kg of *alpha*-amylase is prepared in the reservoir.

The mixture has a water content of 53.7%.

The mixture thus prepared is treated by injecting steam in two stages with the quantity of steam decreasing between the first and the second stage. In the first steam injecting device, the temperature is 93° C., so as to allow the enzymatic reaction and then in the second steam injecting device, the temperature increases gradually up to 140° C., so as to allow sterilization of mixture and inactivation of the enzymes.

After sterilization, the mixture is cooled to 65° C. and then it is spray-dried.

A mixture of hydrolyzed cereals with added honey is thus obtained whose composition is the following:

protein 7.9%
fat 0.8%
carbohydrate 85.8%
fibre 3%
ash 0.5%
water content 2%

I claim:

1. A process for preparing a hydrolyzed cereal product comprising:

preparing a mixture which comprises a cereal flour, *alpha*-amylase and fruit selected from the group consisting of whole fruit and pieces from whole fruit and which comprises a water content of from 40% to 80% by weight;

passing a stream of the mixture in a direction through an annular tubular assembly and injecting a first annular jet of steam and at least one further annular jet of steam in series with the first steam jet within the assembly so that the steam jets envelope the mixture stream passing through the assembly to treat the mixture so that the mixture stream is treated successively by the steam jets first to heat the mixture so that starch of the cereal flour is hydrolyzed by the *alpha*-amylase to obtain a hydrolysis product stream and so that subsequently, the hydrolysis product stream is steam-treated and injecting the first steam jet so that the jet is directed to the mixture stream in a direction which is one of either a direction which is co-current with or a direction which is counter-current to the mixture stream flow direction, and

injecting each further steam jet so that each further jet is directed to the hydrolysis product stream in a direction counter-current to the hydrolysis product stream flow direction and so that quantities of steam injected in series successive to the first steam jet decrease in each successive further steam jet injection;

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obtaining a steam-treated product from the assembly; and

drying the steam-treated product obtained from the assembly to obtain a dried product.

2. The process according to claim 1 wherein the hydrolysis product stream is steam-treated to sterilize the mixture.

3. The process according to claim 1 wherein the first steam jet is injected so that the jet is directed co-currently with the mixture stream flow direction.

4. The process according to claim 1 or 3 wherein the mixture and hydrolysis product streams have a diameter greater than a size of the fruit.

5. The process according to claim 1 further comprising preparing the mixture with an alkali metal salt so that the mixture has a pH of from 5 to 6.5.

6. The process according to claim 5 further comprising, prior to drying, acidifying the steam-treated product to obtain an acidified product having a pH of from 3 to 5, and then drying the acidified product.

7. The process according to claim 1 wherein the steam-treated product obtained is freeze-dried.

8. The process according to claim 1 wherein the fruit is selected from the group consisting of raspberries, strawberries, blackberries and cherries.

9. A process for preparing, a hydrolyzed cereal product comprising:

preparing a mixture which comprises a cereal flour, *alpha*-amylase and honey and which comprises a water content of from 40% to 80% by weight;

passing a stream of the mixture in a direction through an annular tubular assembly and injecting a first annular jet of steam and at least one further annular jet of steam separate from the first steam jet within the assembly so that the steam jets envelope the mixture stream passing through the assembly to treat the mixture so that the mixture stream is treated successively by the steam jets first to heat the mixture so that starch of the cereal flour is hydrolyzed by the *alpha*-amylase and so that spores contained in the honey germinate to obtain a hydrolysis product stream and so that subsequently, the hydrolysis product stream is steam-treated to sterilize the hydrolysis product stream and

injecting the first steam jet so that the jet is directed to the mixture stream in a direction which is one of either a direction which is co-current with or a direction which is counter-current to the mixture stream flow direction, and

injecting each further steam jet so that each further jet is directed to the hydrolysis product stream in a direction counter-current to the hydrolysis product stream flow direction and so that quantities of steam injected in series successive to the first steam jet decrease in each successive further steam jet injection;

obtaining a steam-treated product from the assembly; and drying the steam-treated product obtained from the assembly to obtain a dried product.

10. The process according to claim 1 or 2 or 9 wherein the mixture stream is steam-treated to heat the mixture to a temperature of from 80° C. to 100° C. and the hydrolysis product stream is steam-treated to heat the product to a temperature of from 120° C. to 150° C.

11. The process according to claim 1 or 2 or 9 wherein the hydrolysis product stream is steam-treated with at least three separate injections of steam in series.

12. The process according to claim 1 or 2 wherein the mixture comprises the *alpha*-amylase in an amount of from 0.05 g to 0.2 g per 100 g cereal flour dry matter.

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(54) **Yoghurt added with a prefermented cereals meal mixture in soja extract and process for preparing the same.**

(57) A new yoghurt which contains live lactic ferments, particularly suitable for early childhood feeding is described, comprising a yoghurt base and a cereals meal mixture in soja extract, said mixture being prefermented with a *Bifidobacterium Infantis* and eventually *Streptococcus thermophilus* culture, and then, if it is desired, to the product thus obtained homogenized, aromatized and refined fruit pulp is added. A process for its preparation and its use in the early childhood feeding are also disclosed.

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above mentioned soja and cereals, allows to obtain fermentation intermediates contributing to the best developpe and to the best time stability of Bifidobacterium Infantis, which as a consequence keeps live, viable and in a high level until the end life of the product, also when in the presence of the yoghurt specific lactic ferments.

5 It has been also found that, in comparison with the products already on the market, the separated fermentation with Bifido Infantis and eventually St. thermophilus of the vegetal components mixture is able to give such a predigestion, that then a bioavailability of the secondary metabolits with high nutritional value is achieved (essential amino acids, mono- and polyunsaturated fatty acids), so that said metabolites, after having added said preparation to the yoghurt, enhance the global biologic value of the end-product and
10 also its digeribility and assimilability. The soja extract and the particular cereals types employed in the mixture to be fermented separately with Bifido are among those very often used for the early childhood feeding, in that they consist of the nutritive ingredients absolutely necessary for the childhood growth. In particular cereals have been employed having the following characteristics:

- a) Wheat seed
15 carbohydrates content (28.2 g)
mineral compounds content (4.2 g)
fat (9.2 g)
water (11.7 g)
proteins (26.6 g)
20 wherein all the amounts are based on 100 g of edible portion;
- b) Rice
carbohydrates content (78.4 g)
mineral substances content (0.5 g)
water (12.9 g)
25 fat (0.6 g)
proteins (7.0 g);
- c) Soja
carbohydrates content (6.1 g)
mineral substances content (4.7 g)
30 water (8.5 g)
fat (36.9 g)
proteins (36.9 g);
- d) Oats
carbohydrates content (61.7 g)
35 mineral substances content (1.8 g)
water (10.0 g)
fat (7.0 g)
proteins (13.5 g).

Logically, these characteristics are merely indicative and of course alternative cereal combinations,
40 directed towards different and specific nutritional requirements, could be used. However, the direct inoculum with a selected Bifidobacterium Infantis culture on cereal/soja substrate occurs at the rate of 25 g/100 l, corresponding to 0.025%. The human origin of the used strain has been ascertained by Laboratorium Wiesby GmbH & Co., Germany. The eventual addition of St. thermophilus occurred at a maximum amount of 0.5%.

45 As mentioned above, the semifinished product obtained from fermentation (at 37 °C) with Bifidobacterium Infantis and eventually St. thermophilus is mixed with yoghurt. It has been found to be suitable a mixing ratio of 5:95, with the possibility to change said ratio owing to different nutritional requirements until 10:90.

Subsequently the eventual addition of fruit preparation is accomplished. In this case, it has been found
50 that from the point of view of taste, texture, creamy appearance and nutritional and organoleptic characteristics, the best results are achieved when a ratio of product (as obtained from mixing yoghurt with the semifinished product from fermentation) to fruit preparation of 80:20 was selected, preferably of 82:18.

From what stated above, it is easy to realize that the end-product should also be employed without adding the fruit preparation, and thereafter said product will be referred as "base product". Moreover, it is
55 necessary to point out that the preparation of cereals mixture in soja extract was carried out according to the following steps;

- dispersion of pre-weighed cereals in soja extract at 50 °C,
- pasteurization of the mixture at 95 °C for 30 min,

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- adjustment of the mixture temperature at 37 °C, a suitable value for Bifidobacterium Infantis growth,
- inoculum with the selected Bifido and eventually St. thetmophilus culture, and
- fermentation at controlled temperature (37 °C) for about 10-16 hours until a pH 4.4-4.7 was reached.

As mentioned above, the end-product can be employed both as such (without fruit adding) and as fruit preparation containing product. According to analysis the results of which are listed thereafter, it has been found that the total proteins level is 3.6% for base product and on average 3.0-3.1% for the fruit product, wherein the casein to lactoglobulins ratio is 7. The present proteins rise solely from natural proteins of fresh milk and of added cereals and soja. The creamy appearance of the new yoghurt is, therefore, imputable only to the proteins of fresh milk and cereals and soja, and not to the addition of powdered milk, serum proteins or particular thickeners which have been regarded normally as food additives. A high protein content, noticeable in similar products, is in fact generally imputable to addition of serum proteins, caseinates or powdered milk, and therefore of unconstitutive ingredients of fresh milk, which are added with thickening action and cause hyperproteic levels not corresponding to the user's alimentary requirements.

On a total lipids basis of 4.3% for base product and on average of 3.2% for fruit-containing product, the fatty saturated, mono- and polyunsaturated acids amounts are 65%, 28.5% and 6.5% respectively, based on 100 g of fat matter extracted from the product.

The linoleic and linolenic acids amounts, based again on 100 g of fat matter extracted from the product, are 5% for linoleic acid and 0.6% for linolenic acid, whereas the calcium/phosphorus ratio of about 1:1 is optimal for the calcium metabolism in infants.

The average characteristics of some of these new products are listed here below:

BANANA PRODUCT	
Moisture	73.8%
Ash	0.9%
Proteins	3.0%
Lipids	2.9%
Fiber	
Total glucides	17.7%
fructose	0.3%
glucose	0.5%
galactose	1.0%
saccharose	13.6%
lactose	2.3%
starch	
Calcium (mg/100 g)	114
Phosphorus (mg/100 g)	92
Calories (kcal/100 g)	109.3
Calories (KJ/100 g)	461

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APPLE PRODUCT	
Moisture	73.7%
Ash	0.8%
Proteins	3.0%
Lipids	3.2%
Fiber	
Total glucides	18.5%
fructose	0.6%
glucose	0.6%
galactose	1.6%
saccharose	13.4%
lactose	2.3%
starch	0.0%
Calcium (mg/100 g)	112
Phosphorus (mg/100 g)	93
Calories (kcal/100 g)	114.7
Calories (KJ/100 g)	483

PINEAPPLE PRODUCT	
Moisture	75.7%
Ash	0.9%
Proteins	2.6%
Lipids	3.5%
Fiber	
Total glucids	18.8%
fructose	0.5%
glucose	0.7%
galactose	1.8%
saccharose	13.5%
lactose	2.3%
starch	0.0%
Calcium (mg/100 g)	109
Phosphorus (mg/100 g)	93
Calories (kcal/100 g)	117.1
Calories (KJ/100 g)	493

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(54) **Amylaceous dairy-like food product**

(57) The invention provides a food product composition including a source of starch and/or starch hydrolysate and emulsifier of oil seed origin. The food product has a smooth and uniform consistency substantially devoid of rough or gritty mouthfeel, not unlike a conventional yoghurt. The product may be acidified, which acidification can be achieved by fermentation with a suitable culture or by the admixing of lactic acid. The invention also provides a kit for making the food product.

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Description

The present invention relates to a food product. In particular the present invention relates to a food product including at least one cereal.

5 A strong demand exists in South Africa for yoghurt-like food products. This is especially true in disadvantaged communities where such products, although popular, are often not widely available because of their high expense.

RSA Patent No 76/7153 describes a foodstuff including grain which has been fermented by a suitable milk type culture. The result is a product having the consistency of yoghurt but with a unique taste.

10 RSA Patent No 82/0088 describes a product substantially as disclosed in RSA Patent No 76/7153 but which has been dehydrated into a substantially dry powder. The product is therefore not only easier to store and transport but also keeps better.

RSA Patent No 87/8928 describes a culture fermented product which includes a suitable vegetable oil. The patent discloses that the addition of the vegetable oil has a stabilising effect on the product while at the same time serving to give the product "body".

15 It is now apparent, however, that such culture fermented products described above are still too expensive to be widely accepted within the disadvantaged communities. In particular milk products, especially milk cultured products, are becoming increasingly expensive.

Also, a large portion of the South African population exhibits lactose intolerance. Obviously, products containing substantial amounts of milk products or milk type cultures with a high lactose content are not readily acceptable to this group.

20 An additional disadvantage of conventional milk cultured products is that they are unstable freeze-thaw products which often display syneresis (spontaneous expulsion of liquid from a gel) when stored for long periods.

Accordingly, a need exists for a gelatinised food product which is cheap to manufacture yet is acceptable to a broad spectrum of the population.

25 A further need exists for the food product to be freeze-thaw stable and to be able to be stored for a prolonged period without displaying syneresis.

According to a first aspect of the present invention, there is provided a food product composition including a mixture comprising in combination

- 30 - a source of starch and/or starch hydrolysate; and
- an emulsifier of oil seed origin;

the mixture having been subjected to thorough mechanical homogenisation to a smooth and uniform consistency substantially devoid of rough or gritty mouthfeel.

35 The source of starch may include a cereal based material, the cereal being selected from the group consisting of maize, wheat, sorghum, barley, oats, or rice, maize, preferably white maize, being particularly preferred. The source of starch may be a modified starch. The colour imparted by any particular source of starch is one of the criteria for selecting such source for a given type of product.

40 The oil seed from which the emulsifier originates may be selected from the group consisting of soybean, peanut butter and sunflower. The oil seed or an oil seed product from which the emulsifier originates may be present in not less than 0,1% w/v.

Suitable milk products may be included to achieve the ideal amino acid mix in the product, i.e. to supply the full complement of amino acids.

45 The food product may be acidified to provide a yoghurt or sour milk like product. The acidification may be by lactic acid fermentation by the addition of a suitable culture or by the admixing of lactic acid to the product.

It is preferred, however, that the product be fermented, more particularly by lactic acid fermentation in which case it may be fermented by the addition of a suitable culture, for example, a milk or dairy type culture. The fermented food product may be prepared by using either a non-dairy or dairy type culture conventionally employed to prepare yoghurt, kefir (from horse's milk) or sour milk. Numerous such cultures, particularly of the genus *Lactobacillus*, e.g. *Lactobacillus bulgaricus* are well known.

50 Preferred cultures include *Lactobacillus (acidophilus) bifidus*, *Streptococcus lactis*, *Streptococcus cremoris*, *Leuconostoc citrovorum* and *Leuconostoc dextranicum*. Any specific genetically engineered bacteria may also be used.

It will be appreciated that in order to subject the mixture to fermentation it is necessary to have present suitable fermentable saccharides or sources of fermentable saccharides, more particularly lactic acid-fermentable saccharides.

55 Although it is preferred, inter alia for reasons of superior flavour, to perform the fermentation with live cultures in situ, it is possible in principle to perform the fermentation with suitable extraneously introduced enzymes such as lactase, amylase, etc.

The fermentable saccharides and/or hydrolysable starch may at least in part be added to the food product, but they

preferably stem from the cereal itself. Fermentable saccharides may also be added in the form of whey, milk powder and/or fresh pasteurised or unpasteurised bovine or goats milk etc.

The cereal and/or oil seed may be sprouted, hulled or dehulled, toasted or untoasted, water or steam cooked, extruded, micronised, microwaved or heated by any conventional or novel method for the purpose of gelatinising the starch and rendering the cereal and/or oil seed palatable for human consumption.

Preferably the cereal and oil seed are present in the form of a flour. The particle size of the flour is preferably between 30 and 700 microns.

Alternatively, the starch and/or emulsifier is in a form selected from the group consisting of a liquid, a slurry, and a powder.

The liquid and/or slurry may have a solids concentration from 0,1 to 50% v/v solids. They may be milks/liquids produced from cereal or oil seed based raw materials. Preferably the oil seed product is a vegetable milk (i.e. a non-dairy milk).

The powder, liquid, or slurry, referred to above may be prepared by drum drying, spray drying or agglomerating, or any other recognised conventional or novel method.

The powders may include whole or defatted flour (toasted or untoasted), concentrates, concentrate or spun isolates, milled or unmilled grits, okara (a byproduct of soymilk production), texturised vegetable protein (TVP) and sprout powder prepared from cereal and/or oil seeds used for human consumption.

In a preferred embodiment of the invention soybean milk in liquid or powder form may be used in both the fermented and unfermented products according to the invention. The product may be produced directly from the bean or soya concentrate or soya isolate.

The addition of animal milk or solids (especially bovine milk either in liquid or dry form) with soymilk in the fermented products improves product flavour, mouthfeel, the overall quality, nutrition, and fermentability.

By "mouthfeel", the applicant refers to an acceptable texture and consistency of the product on the tongue and palate of a consumer thereof.

Both the fermented and unfermented products according to the invention, may also include sweeteners such as glucose, lactose, sucrose, or any other natural or artificial sweeteners such as saccharine, aspartame or acesulfame K etc.

As mentioned above, the product according to the invention may contain whey or whey powder, inter alia as a source of fermentable lactose. The product may also contain semi-synthetic or synthetic stabilisers such as gums, accepted by the international food community.

The food product may also contain one or more fruits, fruit products, fruit purees, and/or one or more natural and/or artificially flavoured materials and or flavourants and/or colourants.

The food product according to the invention may, serving as the aforesaid oil seed product or in addition thereto, include one or more vegetable oils, fats or blends thereof, (such as soybean oil, or maize oil or a blend of maize and sunflower oil, in either liquid or powder encapsulated form) in order to improve texture, colour and mouthfeel as well as to boost energy levels of the product.

With regard to the taste and appearance of the food product according to the invention, the fermented food product closely compares with fermented products based on animal milk. The product according to the invention is extremely smooth and ideal for eating by spoon, not unlike yoghurt.

The food product according to the invention can be formulated to contain no cholesterol or unfermented lactose. The product is ideal for hospital feeding and for the manufacture of baby foods. It is not anticipated that consumers, patients or babies sensitive to acidic products will be affected by, for example, a soya-maize or bovine milk-maize food products as hereinbefore described even with a pH lower than 3,7. It is thought that this is primarily due to the buffer action of maize in the digestive system.

Food products as described above have also been found to have diarrhoea inhibiting qualities.

Both the fermented and unfermented products as hereinbefore described may be used in ice cream manufacture, as fillers or as separate products in the canning industry, as well as in extrusion or co-extrusion processes for the purpose of manufacturing peanut or soya based chips. The food product may also be spray dried for the purpose of manufacturing oil seed/cereal based products in powder form. The products may also be used in salad dressing, cheese sauces and pudding/dessert formulations etc.

It will be appreciated that, if required the product may be enriched with additives selected from the group consisting of water soluble vitamins, oil soluble vitamins, macro nutrients, micro nutrients, protein sources other than the said oil seed, and energy sources (fat or oil).

According to a second aspect of the present invention there is provided a method of preparing a food product according to the invention as hereinbefore described, the method including the steps of

- preparing a wet mixture of a source of starch and/or starch hydrolysate, and emulsifier of oil seed origin; and
- subjecting the mixture to thorough mechanical homogenisation to a smooth and uniform consistency, substantially,

devoid of rough or gritty mouthfeel.

Where the source of starch includes a cereal based material, gelatinisation of the starch of the cereal is brought about by a process selected from the group consisting of heating with water, cooking or steaming at atmospheric pressure, and cooking or steaming at elevated pressure.

The emulsifier, is preferably added to the cereal either before, during, or after the heating process.

If desired, the product may be subjected to an acidification step, such as the addition of lactic acid to the product or fermentation by a suitable culture. The fermentation may take place either before, during, or after the heating process.

The homogenisation step of the method may be a pressure homogenisation, in which the pressure is not less than 200 bar in a single stage homogeniser. Where a two stage homogeniser is used, the operating pressure being between 20 bar and 150 bar on the first stage and between 50 bar and 250 bar on the second stage, preferably the homogenisation pressure being 50 bar on the first stage and 100 bar on the second stage.

The homogenisation of the product may take place after the product is allowed to cool after heating, however, homogenisation of the product may take place without cooling.

It will be appreciated that the food product may be homogenised by any other suitable homogenisation means.

The product may also be subject to a sterilising step. This step may be effected by heating, radiation (for example gamma radiation - preferably not to exceed 45 Kilogray) or other chemical (for example peroxide system) methods.

The product may also be aseptically packed into containers, for example plastic containers, cans or cartons, for example, by the UHT process (Ultra-Heat-Treatment).

The method of preparing the food product may include the further step of reducing the product to a substantially dehydrated form, for example, by spray drying.

The invention will now be described with reference to the following non-limiting examples:

EXAMPLE 1

INGREDIENTS	PERCENTAGE (%)
CEREAL (Comminutated maize)	7,5
MILK SOLIDS (Whey)	3,0
SOYA ISOLATE	2 - 10
SUGAR (Sucrose)	2 - 10
STABILISER (Guar gum)	0,1 - 3,0
FLAVOUR (Apricot)	0.1 - 0,8
COLOURANT (Sunset Yellow)	0,01 - 0,5
FRUIT (Apricot)	3 - 10
WATER	s.q.

By means of a high powered mixing pump the cereal, milk solids, soya isolate, sugar and water are mixed into solution. The solution is heated under constant stirring to boiling point (2 to 15 minutes).

If uncooked cereal is used, the above ingredients are mixed except for the cereal and the mixture is heated under continuous stirring to a temperature of 75°C. At this temperature, the maize flour is added to the mixture stirred continuously. Thereafter, the mixture is brought to boiling temperature (approximately 97°C) and maintained at this temperature for 5 to 20 minutes.

After boiling, the product is cooled to 75°C to 85°C and then homogenised under maximum pressure (preferably 3000 psi).

The mixture is then cooled under constant stirring to approximately 44°C and inoculated with a 50:50 of Lactobacillus bulgaricus and Streptococcus thermophilus for fast culturing. The culture is then left with constant stirring for 3 to 6 hours or until a pH of 4,4 to 3,7 or lower is reached. The product is then cooled to 20°C whereafter the fruit, flavours and colouring are added. The final product is cooled to 5°C and packed.

Because of the low pH of the final product, the conventional high pressure sterilisation methods are not necessary.

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EXAMPLE 2

5 As per example 1 except after homogenisation, the mixture is cooled under constant stirring to approximately 21°C to 30°C and inoculated with a 50:50 mixture of Lactobacillus bulgaricus and Streptococcus thermophilus for slow culturing. The culture is then left with constant stirring overnight or until a pH of 4,4 to 3,7 or lower is reached. Thereafter product is packed as before.

EXAMPLE 3

10 As per either example 1 or 2 that after the pH of 4,4 to 3,7 or lower is reached, and after the fruit, flavours and colouring are added, the product is reheated, for example, by means of a contherm, pipe heating system or other suitable heat exchanger to a temperature of 84°C to 105°C. The product is then packed aseptically into plastic or metal containers. Further heating in boiling water is possible should the need arise.

15 **EXAMPLE 4**

As per any one of examples 1 to 3 wherein the cereal is wheat, sorghum, barley, oats or rice, the cereal being toasted or untoasted and preferably in the form of a flour.

20 **EXAMPLE 5**

As per any one of examples 1 to 4 wherein the milk solids are skim milk, full fat/cream milk and may be powdered or liquids comprising up to 80% solids.

25 **EXAMPLE 6**

As per any one of examples 1 to 5 wherein the sugar is glucose, fructose or dextrose.

EXAMPLE 7

30 As per any one of examples 1 to 6 wherein the stabiliser is Xanthum Gum.

EXAMPLE 8

35 As per any one of examples 1 to 7 wherein the flavour is peach, banana, strawberry, apple, blueberry, chocolate, cherry, pineapple, goosberry, orange or any suitable fruit.

EXAMPLE 9

40 As per any one of examples 1 to 8 wherein the colour is Carmine-Red.

EXAMPLE 10

45 As per any one of examples 1 to 9 wherein the soya isolate is replaced with soymilk made from whole beans or from some other source

EXAMPLE 11

50 As per any one of examples 1 to 10 wherein the base formula excludes any one or more of the group selected from milk solids, stabiliser, flavour, colourant and fruit.

EXAMPLE 12

55 As per any one of examples 1 to 11 wherein the basic formula excludes water and milk solids but includes skim or full cream/fat milk.