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CONFECTIONERY PRODUCT

The present invention relates to a confectionery product comprising chocolate together with a chewy sweet component having a base of a continuous syrup comprising a solution of sugars, sugar substitutes and/or glucose syrups in water.

In our co-pending EP-A-0603467, the contents of which are hereby incorporated into the present specification, a method is described for the cold extrusion of chocolate or a fat-containing confectionery material in a solid or semi-solid non-pourable form whereby the extruded product has a temporary flexibility or plasticity enabling it to be physically manipulated or plastically deformed, e.g. it can be cut, bent, twisted or injected into a mould.

As is well known, chewy sweets have a base of a continuous syrup comprising a solution of sugars, sugar substitutes and/or glucose syrups in water together with other ingredients dissolved or dispersed within to modify the texture, flavour and appearance, e.g. milk, fats such as milk fats, flavours, colouring agents, proteins, hydrocolloids such as starch or gelatin, gums such as gum arabic, emulsifiers, sugar crystals, etc. and which may be caramelised in the case of toffee and caramel. Toffees and caramels normally contain as basic ingredients, sugar, glucose syrup, milk protein, fat, salt and water. Formulations of toffees and caramels are described in the book "Sugar Confectionery Manufacture" edited by E.B.Jackson, Chapter 9 - Caramel Toffee and Fudge by D.Stansell,published by Blackie 1990.

We would mention that the name caramel is also used for products made by the breakdown of carbohydrate by heat or heat and alkali treatment which products are predominantly

used as colouring materials and it should be understood that caramel in this sense is not used in the present invention.

Chewy sweets such as toffees and caramels have a characteristic flavour, texture and mouth feel which is distinct from chocolate. Products containing both chocolate and either toffee or caramel are known but in such products the toffee and caramel are distributed separately within the chocolate. For example, one product comprising a bar of chocolate having dispersed therein pieces of caramel is prepared by mixing liquid chocolate with pieces of caramel. Another product comprising toffee surrounded by a chocolate coating is prepared by incorporating liquid toffee into a shell moulded chocolate.

It is possible to produce a product comprising a more intimate mixture of toffee and chocolate by mixing liquid toffee and liquid chocolate. The temperature of the ingredients is typically 30°C or higher provided that both ingredients are in liquid state. The liquid state leads to intimate mixing and the production of a homogeneous product.

We have found surprisingly that, by using a cold extrusion process similar to that described in the above-mentioned co-pending EP-A-0603467, we have been able to produce a new product which is an intimate mixture of chocolate together with a chewy sweet component but which is not homogeneous. This product comprises a chocolate matrix having veins or strands of chewy sweet dispersed therein and has a unique texture which combines the smooth mouth feel and bite of the chocolate with the flavour and chewy texture of the chewy sweet.

Accordingly, the present invention provides a confectionery product comprising chocolate or a fat-containing confectionery material together with a chewy sweet component having a base of a continuous syrup comprising a solution of sugars, sugar substitutes and/or glucose syrups in water characterised in that the confectionery product comprises a chocolate matrix having veins or strands of chewy sweet dispersed throughout.

Typically, the veins or strands of chewy sweet are dispersed throughout the chocolate matrix in a roughly longitudinal direction, as a result of the extrusion process.

The confectionery product may contain for example from 5% to 75%, preferably from 10 to 50% and especially from 15 to 40% by weight of the chewy sweet based on the total weight of the confectionery product.

The chewy sweet may be, for instance, a toffee or a caramel and the formulations can be varied according to requirements, e.g. to give different hardness and flow properties.

The sugar component of toffee and caramel is preferably sucrose; the usual glucose syrup is 42-DE acid converted glucose; the milk protein is usually introduced as sweetened condensed milk; and the fats are usually butter and/or vegetable fats such as hardened palm kernel oil (HPKO), or fat blends containing partially hydrogenated palm, soya, groundnut, rapeseed and other oils. If desired, emulsifiers such as soya lecithin or glyceryl monostearate may be present.

The chocolate material may be dark, milk or white chocolate. Fat containing confectionery materials may

include sugar, milk derived components, and fat and solids from vegetable or cocoa sources in differing proportions having a moisture content less than 10%, more usually less than 5% by weight. They may be chocolate substitutes containing direct cocoa butter replacements, stearines, coconut oil, palm oil, butter or any mixture thereof; nut pastes such as peanut butter and fat; praline; confectioner's coatings used for covering cakes usually comprising chocolate analogues with cocoa butter replaced by a cheaper non-tempering fat; or "Caramac" (RTM) sold by Nestlé comprising non-cocoa butter fats, sugar and milk. Since the fat containing confectionery material contains less than 10% water, flour confectionery products such as cakes and pastries are excluded.

The confectionery products of the present invention have a unique chewy texture with a smooth mouth feel. The usual tendency of chewy sweets to stick to the teeth is less apparent in this product.

One method of preparing the confectionery product of the present invention is by extruding a mixture of the chocolate or fat-containing confectionery material together with the chewy sweet component at a temperature at which both ingredients are in a solid or semi-solid non-pourable or non-flowable form throughout the extrusion process from being fed into the extruder to emerging from the die.

The chewy sweet component may be fed into the extruder either together with the chocolate or fat-containing confectionery material or it may be introduced into the extruder downstream of the point where the chocolate or fat-containing confectionery material is introduced but upstream of the die. The temperature of both ingredients during the extrusion may conveniently be from -5°C to 34°C, preferably from 10° to 30°C, more preferably from 15°C to

25°C and especially from 18° to 22°C. Lower temperatures are preferred for lower melting materials such as a high butter fat milk chocolate.

The extruder may be a ram extruder, a single screw extruder or a twin screw extruder. The twin screw extruder may be either one using counter-rotating screws or one using co-rotating screws.

The pressure of the extrusion may be from 1 to 1000 bars, preferably from 5 to 500 bars and especially from 10 to 250 bars.

During the extrusion, the chewy sweet ingredient is extruded and flows with the chocolate or fat-containing material to give a product having the unique texture hereinbefore described. The extrusion process imparts a plastic deformation and the viscosity difference between the two ingredients (chocolate is more viscous than chewy sweets) enables some mixing to obtain an extruded product having a matrix of chocolate with veins or strands of chewy sweet dispersed through the matrix usually in a roughly longitudinal direction. The surface finish of the product may have a marbled appearance. The degree of mixing may be varied by adjusting the extruding conditions and the extruder type. For example, it is possible to produce a few large strands of chewy sweet within the chocolate matrix or, if desired, it is possible to produce a very fine dispersion of veins or strands of chewy sweet within the chocolate matrix to give the appearance of a homogeneous product.

The extruded confectionery product has a temporary flexibility which may last up to 4 hours, e.g. from 30 seconds to 2 hours, more usually from 1 minute to 1 hour and preferably from 5 minutes to 45 minutes. During this

period of temporary flexibility, the extruded confectionery product may be injection moulded as described in EP-A-0603467 or GB-A-9504686.8, cut, formed into a bag or pouch, for instance, by a method as described in GB-A-5471, or manipulated as described in GB-A-9522162.8 or GB-A-9522263.4.

If desired, other food ingredients may be incorporated into the extruded confectionery product, e.g. nuts, dried fruit pieces, biscuits, potato crisps, sugar pieces or other particulate food ingredients, or any mixture of two or more thereof. The size of the pieces and proportion of these other ingredients may vary according to the requirements such as the organoleptic characteristics required. For instance, these other ingredients may be incorporated in amounts of 1 to 75%, preferably from 2 to 50% and more usually from 5 to 30% by weight based on the total weight of the confectionery product. These other ingredients may be added, for example, to one or both of the chocolate or fat-containing confectionery material and the chewy sweet component during their manufacture while still in the liquid state prior to cooling before extrusion or, more conveniently, they may be added into the extruder together with the pieces of the solid or semi-solid chocolate or fat-containing confectionery material. These other ingredients may then be extruded together with the mixture of the chocolate or fat-containing confectionery material and the chewy sweet component through the extruder.

The following Example further illustrates the present invention.

Example

25 parts of toffee in particulate form having an average diameter of 3-5mm and 75 parts of chocolate buttons are fed

from a hopper at 23°C into a FLORIN hydraulically driven ram extruder having a die opening of 5 mm cross section. The ram is advanced at a pressure of 80 bars and non-pourable rods of a product comprising a mixture of chocolate and toffee having 5 mm diameter are extruded. The product comprises a chocolate matrix with strands of toffee running through in a roughly longitudinal direction, the surface of which has a marbled appearance. It has a temporary flexibility which lasts for about 45 minutes. It has a smooth mouth feel and bite like chocolate with a toffee flavour and chewiness and does not readily stick to the teeth.

CLAIMS:

1. A confectionery product comprising chocolate or a fat-containing confectionery material which contains less than 10% water together with a chewy sweet component having a base of a continuous syrup comprising a solution of sugars, sugar substitutes and/or glucose syrups in water characterised in that the confectionery product comprises a chocolate matrix having veins or strands of chewy sweet dispersed throughout.

2. A confectionery product according to claim 1 wherein the veins or strands of chewy sweet are dispersed throughout the chocolate matrix in a roughly longitudinal direction.

3. A confectionery product according to claim 1 wherein the confectionery product contains from 5% to 75 by weight of the chewy sweet ingredient based on the total weight of the confectionery product.

4. A confectionery product according to claim 1 wherein the chewy sweet is a toffee or a caramel.

5. A confectionery product according to claim 1 wherein the chocolate material is dark, milk or white chocolate.

6. A confectionery product according to claim 1 wherein the fat containing confectionery materials include sugar, milk derived components, and fat and solids from vegetable or cocoa sources in differing proportions having a moisture content less than 10%.

7. A confectionery product according to claim 1 wherein the fat containing confectionery material is a chocolate substitute.

8. A confectionery product according to claim 1 wherein other food ingredients are incorporated into the extruded confectionery product.

9. A confectionery product according to claim 8 wherein the other food ingredients are nuts, dried fruit pieces, biscuits, potato crisps, sugar pieces or other particulate food ingredients, or any mixture of two or more thereof.

10. A confectionery product according to claim 8 wherein the other food ingredients are incorporated in amounts of 1 to 75% by weight based on the total weight of the confectionery product.

11. A method of preparing a confectionery product claimed in claim 1 which comprises extruding a mixture of the chocolate or fat-containing confectionery material together with the chewy sweet component at a temperature at which both ingredients are in a solid or semi-solid non-pourable or non-flowable form throughout the extrusion process from being fed into the extruder to emerging from the die.

12. A method of preparing a confectionery product according to claim 11 wherein the chewy sweet is fed into the extruder either together with the chocolate or fat-containing confectionery material or it may be introduced into the extruder downstream of the point where the chocolate or fat-containing confectionery material is introduced but upstream of the die.

13. A method of preparing a confectionery product according to claim 11 wherein the temperature of both ingredients during the extrusion is from -5°C to 34°C.