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(54) **NON-TOBACCO MOIST SNUFF
COMPOSITION AND A METHOD FOR ITS
MANUFACTURE**

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(57) **ABSTRACT**

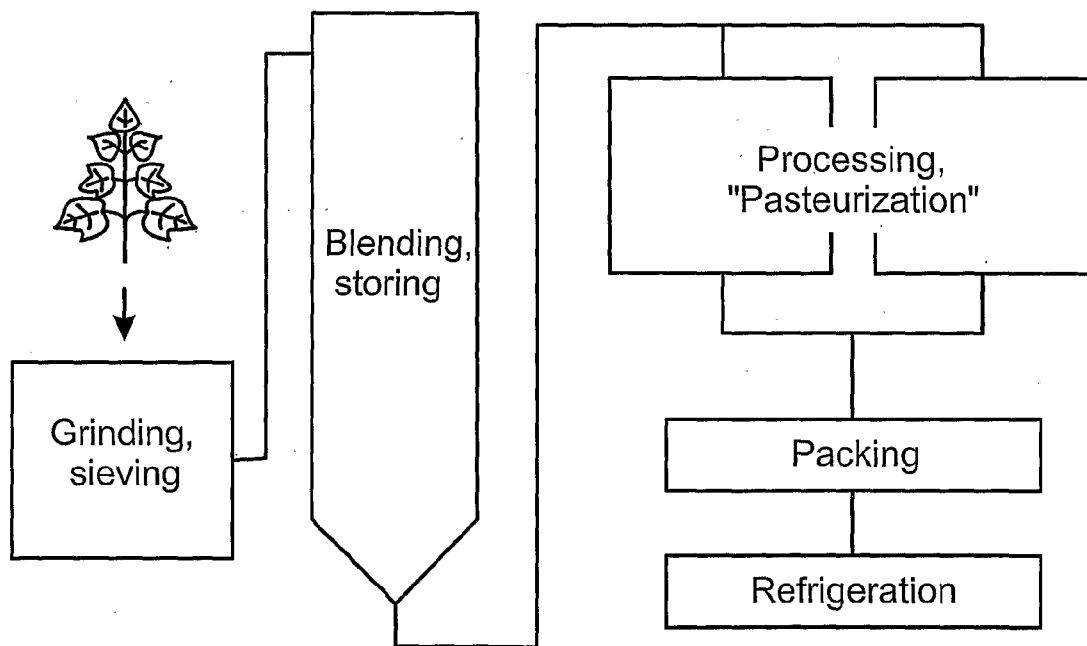
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tion No. 12/597,655, filed on Mar. 22, 2010.

A non-tobacco snuff composition for oral use including at least one type of plant fibers with a high dietary fiber content, wherein the fiber dietary content in the composition is 15-90 w/w % based on the dry weight of the composition and a method for manufacturing the non-tobacco snuff composition.

The manufacturing process



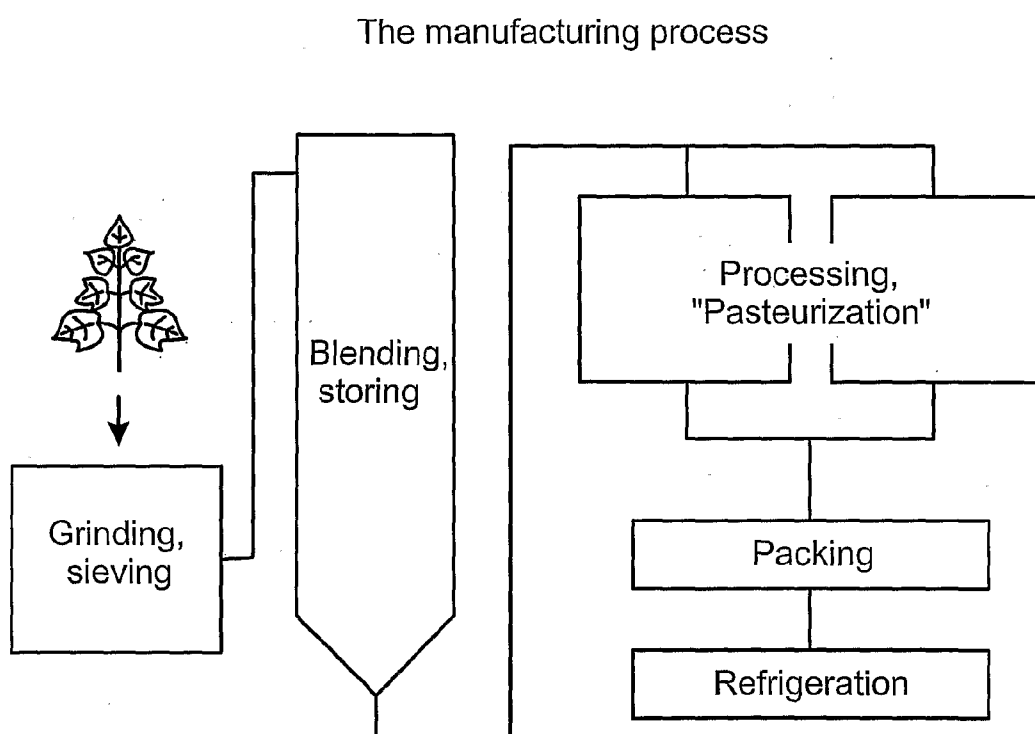


Figure 1

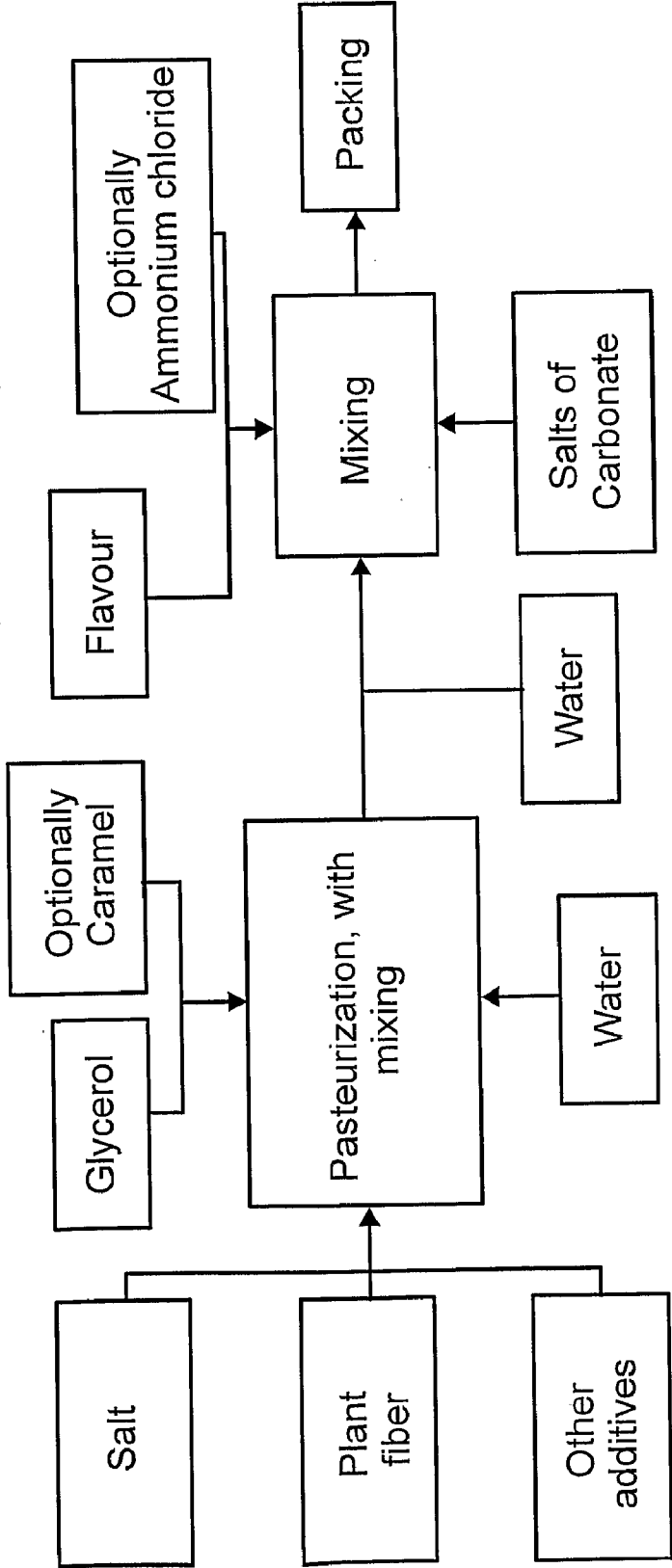


Figure 2

**NON-TOBACCO MOIST SNUFF
COMPOSITION AND A METHOD FOR ITS
MANUFACTURE**

[0001] This application is a continuation-in-part application of U.S. patent application Ser. No. 12/298,799, filed on Nov. 5, 2008 and U.S. patent application Ser. No. 12/597,655, filed on Mar. 22, 2010 the entire contents of which are incorporated herein by reference.

[0002] The present invention relates to a non-tobacco moist snuff composition for oral use comprising at least one type of plant fibers with high dietary fiber content and a method of manufacturing the non-tobacco moist snuff composition.

BACKGROUND

[0003] Tobacco can be used and/or consumed in a variety of products and methods. Most commonly, tobacco is smoked, chewed, or used as snuff.

[0004] Smokeless tobacco products are tobacco-based products that are held in the mouth for an extended period of time and either chewed or used as snuff (“dipped”). Chewing tobacco, popularly called chew or chaw, is available in three forms, as loose-leaf chewing tobacco, coherent plugs and as spun strands of tobacco (product known as “twist”). Snuff is available in two forms, as dry nasal snuff for sniffing, and moist (or wet) snuff for use in the oral cavity by placing between the lip and gum. American-type moist snuff is available in a loose form or as pre-packed pouches and is typically used between the lower gum and lip. The use of American-type moist snuff is commonly called dipping. Snus is the Scandinavian-type of moist snuff which is available in loose form or as pre-packed portions and typically used between the upper gum and lip.

[0005] Unfortunately, the nicotine in tobacco is a substance to which people may become addicted. Thus, increasing attention, by the medical profession and the public, has been directed against chewing tobacco and tobacco moist snuff.

[0006] In light of the foregoing, there has been a need for non-tobacco products intended for personal use as chew or snuff. Such smokeless non-tobacco products may be offered as a healthier alternative to smokeless tobacco products, especially for those who currently use smokeless tobacco products. Smokeless non-tobacco products could be developed without addictive nicotine.

[0007] Through US 2004/0123873 there is disclosed a non-tobacco moist snuff composition wherein corn silk is used for producing a non-tobacco moist snuff composition.

[0008] There are also non-tobacco snuff products for oral use currently on the Swedish market, portion-packed products under the brand names Choice®, XQs™ and RealTaste. However, these products are not moist and will not resemble the feeling of using moist tobacco snuff products. Accordingly they all lack similarity with moist tobacco snuff products, such as snus, and they do not have the taste and characteristics similar to moist tobacco snuff products, such as snus. Further, several of these non-tobacco products are based on herbs. Herbs often have infections of bacteria and mould obtained from the fields.

[0009] Thus, there is still a need for non-tobacco materials for use in moist non-tobacco snuff products that result in products that resemble moist tobacco snuff, i.e., have a similar texture, color, taste, flavor and feeling as to that of moist

tobacco snuff products, so that a consumer may experience the same feeling/enjoyment as when using, e.g., snus.

[0010] Moreover, non-tobacco moist snuff may, depending on the components used, be associated with various production-oriented problems. Consequently, there also exists a need for an improved non-tobacco moist snuff product that can be efficiently produced.

SUMMARY OF THE INVENTION

[0011] The present invention provides a non-tobacco snuff composition for oral use and a method of manufacturing the non-tobacco moist snuff composition, by which the above-mentioned problems can be overcome.

[0012] The non-tobacco moist snuff composition and the method of its manufacturing according to the invention are defined in the appended claims.

[0013] In a first aspect of the invention a moist snuff composition comprising at least one type of plant fibers with a high dietary fiber content is provided, wherein the dietary fiber content in the composition may be from 15 to 90 w/w % based on the dry weight of the final composition.

[0014] In a second aspect of the invention a method of manufacturing a non-tobacco snuff composition according to the first aspect of the invention is provided, the method comprising:

[0015] a) providing the plant fibers, preferably in flour form;

[0016] b) processing the plant fibers provided in step a), preceded by mixing, if more than one type of plant fibers is used, or if fibers with different size distribution are used; wherein step b) comprises:

[0017] i) adding water, one or more humectants, NaCl and optionally other ingredients to the plant fibers under stirring to form a mixture;

[0018] ii) heating and keeping the mixture heated, thus achieving a pasteurization of the mixture,

[0019] iii) cooling the moist snuff mixture; and

[0020] iv) optionally adding other ingredients such as one or more additional salts, humectants, dyes, flavors and flavor enhancing additives, such as liquorice and ammonium chloride,

[0021] c) and optionally packing the obtained moist snuff mixture, either in pouches, which is preferred, or as is, in cans.

BRIEF DESCRIPTION OF THE FIGURES

[0022] FIG. 1 shows the manufacturing process of moist snuff in accordance with GothiaTek® standard, when making a tobacco containing product.

[0023] FIG. 2 shows a flow chart for the manufacturing of non-tobacco moist snuff composition according to the second aspect of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0024] It is intended throughout the present description that the expression “plant fibers” embraces any plant fiber that may be useful in the manufacturing of a non-tobacco moist snuff composition according to the present invention.

[0025] Fibers that can provide a moist non-tobacco snuff with organoleptic properties, such as texture, glueyness/stickiness, taste and color, similar to that of tobacco containing snuff, have long been sought after, due to the characteristics needed. For example, the fibers need to have low sugar content, be essentially free from unwanted chemical compo-

nents and bacteria. Furthermore, the fibers should be available in large quantities at a reasonable cost and easy to handle during manufacturing of the moist non-tobacco moist snuff composition.

[0026] Plant fibers suitable for use in the product according to the present invention are derived from plant materials, which have been industrially processed in order to obtain plant fibers with a high content of dietary fibers, free from undesired chemicals and with limited, almost insignificant, levels of bacteria.

[0027] Plant fibers, suitable for use in the non-tobacco moist snuff composition of the present invention, have preferably a dietary fiber content of 40% to 99%.

[0028] The term dietary fiber content, as used herein, means the total dietary fiber content in a fiber/additive/blend as measured using a standardized method for dietary fiber determination. Such methods are, for example, AOAC 985.29 [Prosky et al], AOAC 991.43 [Lee et al] (which is equivalent to NMKL No 129, 2 ed, 2003), or AOAC 994.13 [Theander et al] (which is equivalent to NMKL No 162, 1998). AOAC (Association of Analytical Communities) is an international organization, which certifies analytical methods. NMKL stands for the Nordic Committee on Food Analysis.

[0029] Plant fibers with a high content of dietary fiber, suitable for use in the non-tobacco moist snuff composition of the present invention, may be selected from the group comprising maize fibers, oat fibers, tomato fibers, barley fibers, rye fibers, sugar beet fibers, buck wheat fibers, potato fibers, cellulose fibers, apple fibers, cocoa fibers, bamboo fibers, citrus fibers, or a combination thereof.

[0030] The plant fibers suitable for use in the manufacturing of a non-tobacco moist snuff composition of the present invention, have a dietary fiber content of, for example, oat fibers (dietary fiber content >85%), apple fibers (dietary fiber content approx. 50-60%), sugar beet fibers (dietary fiber content approx. 65-75%), potato fibers (dietary fiber content approx. 70%), maize fibers (dietary fiber content approx. 70-80%), buckwheat fibers (dietary fiber content approx. 90%), cocoa fibers (dietary fiber approx. 50%), bamboo fibers (dietary fiber content approx. >94%), citrus fibers (dietary fiber content approx. 88-93%) or cellulose fibers (dietary fiber content approx. 95-99%).

[0031] The non-tobacco moist snuff composition according to the present invention may comprise one type of plant fibers or a mixture of two or more types of plant fibers.

[0032] The non-tobacco moist snuff composition according to the present invention may comprise a total amount of plant fibers in the final composition from 40 to 92 w/w %, calculated as total weight of dry plant fibers based on the total weight of dry matter of the final composition (all components in the final composition included except water). Further, the amount of plant fibers comprised in the non-tobacco moist snuff composition may suitably be from 50 to 86 w/w %, calculated as total dry weight of plant fibers based on the total dry weight of the final composition, preferably from 60 to 80 w/w %.

[0033] As used herein, the expression "water content" means the total water content in a fiber/additive/blend (including natural water contained in the materials used, as well as added pure water) as measured by using a standardized method for water analysis, such as, Karl Fischer titration.

[0034] Furthermore, as used herein, the expression "dry weight" means the weight of a fiber/additive/blend excluding the weight of water. Accordingly, the expression "w/w %

based on the dry weight of the final composition, means the weight of fibers or an additive, divided by the total weight of all components included in the final composition excluding the weight of water in the final composition.

[0035] According to a preferred embodiment of the first aspect of the invention, the non-tobacco moist snuff composition may comprise a dietary fiber content in the final composition from 20 to 85 w/w % based on the dry weight of the final composition as determined by an AOAC standardized method, suitably from 25-80 w/w %, or preferably from 30-75 w/w %.

[0036] According to another preferred embodiment of the first aspect of the invention, the non-tobacco moist snuff composition may comprise a dietary fiber content in the final composition from 35 to 70 w/w % based on the dry weight of the final composition as determined by an AOAC standardized method, preferably from 40 to 65 w/w %.

[0037] According to a preferred embodiment of the first aspect of the invention the plant fibers used in the moist snuff composition may be a combination of oat fibers and cocoa fibers, suitably in a proportion of 40-90 weight % oat fibers and 10-60 weight % cocoa fibers (w/w % on dry matter basis) and preferably in a proportion of 55-75 weight % oat fibers and 25-45 weight % cocoa fibers.

[0038] According to a another embodiment of the first aspect of the present invention, the non-tobacco moist snuff composition may comprise water in an amount from approximately 30 to 50 w/w % of the total weight of the final composition or more, preferably from approximately 35 to 41 w/w %, as determined by Karl Fischer titration.

[0039] According to yet another embodiment of the first aspect of the invention the non-tobacco moist snuff composition may comprise humectants selected from the group of glycerol, propylene glycol or a combination thereof.

[0040] According to a preferred embodiment of the first aspect of the invention, the non-tobacco moist snuff composition may comprise glycerol in an amount from approximately 2 to 15 w/w %, preferably from approximately 8 to 12 w/w %, based on dry weight of the final composition.

[0041] According to yet another embodiment of the first aspect of the present invention, the non-tobacco moist snuff composition may comprise sodium chloride (NaCl) in an amount from approximately 6 to 16 w/w %, preferably from approximately 8 to 10 w/w % based on the dry weight of the final composition.

[0042] According to yet another embodiment of the first aspect of the invention the non-tobacco moist snuff composition may comprise additional salt(s), such as, a carbonate and/or ammonium chloride.

[0043] According to yet another embodiment of the first aspect of the invention the non-tobacco moist snuff composition may comprise a dye, such as, caramel (E150), or vegetable carbon (E153).

[0044] According to yet another embodiment of the first aspect of the invention the non-tobacco moist snuff composition may comprise flavors, wherein the flavors may be selected from the group comprising fruits, berries, flowers, herbs, oil of fruits and edible plants or a combination thereof.

[0045] The non-tobacco moist snuff composition according to the present invention may comprise one or more additive(s) that contribute to an energizing, refreshing, stimulant, relaxing and/or healthy feeling for the consumer of the product. Such additives may be selected from the group comprising the natural form of, or extracts from, fruits, leaves, berries,

vegetables, barks and herbs or a combination thereof. Suitable additives may be, for example, caffeine, red clover, Echinacea, green tea extract, maca, mate, matcha, roiboos, ginger, rose hips, white clover, sweet clover, ginseng, guarana, arctic root, rosmory, buckthorn, bilberry, cranberry, lingonberry, anise, clove, gum tragacanth, gum arabic, gum acacia, gum karaya, locust bean gum, xanthan gum. Said additives may be used separately or in combination of two or more. The benefits of these additives are well known in the art. Caffeine, for example, is a substance highly appreciated for its acting as a stimulant, temporarily warding off drowsiness and restoring alertness. Caffeine naturally occurs in seeds, leaves and fruits of some plants, e.g. the bean of the coffee plant, the leaves of e.g. tea bushes and mate and guarana berries, which in addition are rich in polyphenols, more specific tannins. Ginsenosides, the active substance in ginseng, is another substance known to prevent drowsiness and to increase the power of concentration. Besides adding healthy properties to the product, most of the suitable additives may also contribute to taste enhancement or preservation of the product. This would be the effect from, e.g., green tea extract.

[0046] Combination of several of the above-mentioned additives in the same formulation may be used to obtain a multifunctional product. A possible combination may be, for example, caffeine, guarana and ginseng, which successfully may be used for an "energized" formulation.

[0047] According to a preferred embodiment of the first aspect of the invention the non-tobacco moist snuff composition may comprise guarana, caffeine, ginseng, green tea extract, maca, mate, matcha, and/or roiboos. The amount of guarana in the final composition may be from approximately 4 to 16 w/w % based on the dry weight of the final composition. The amount of caffeine in the final composition may be from approximately 1 to 16 w/w % based on the dry weight of the final composition. The amount of ginseng in the final composition may be from approximately 3 to 9 w/w % based on the dry weight of the final composition. The amount of green tea extract, maca, mate, matcha, and/or roiboos in the final composition may be from approximately 0.5 to 2.5 w/w % based on the dry weight of the final composition.

[0048] According to yet another embodiment of the first aspect of the present invention, the finished product of the non-tobacco moist snuff composition may be packaged in particular form, as is, in any suitable package, or as pre-packed portions, such as pouches, or lozenges, packed in any suitable package, or in any other package known in the art.

[0049] According to a preferred embodiment of the first aspect of the present invention there is provided a pouch containing the moist snuff composition of the invention.

[0050] The method of manufacturing of a non-tobacco moist snuff composition according to the second aspect of the invention follows the manufacturing of Scandinavian type moist snuff, i.e. snus, according to GothiaTek® standard as set out below. However, GothiaTek® standard may be adapted/optimized in order to result in a non-tobacco moist snuff composition according to the first aspect of the invention. For example, the type of plant fibers used, time and temperature during heat treatment, frequency and speed of stirring as well as the kind of optional additives used, are parameters that may affect the quality/structure of the final product. Thus, the method according to the second aspect of the invention may be optimized in one or more steps in order

to result in a product resembling tobacco moist snuff, which is the main aim of the present invention.

GothiaTek® Standard

[0051] GothiaTek® standard is a well established standard which states rules and requirements for manufacturing of snus. The standard includes requirements on tobacco, additives, manufacturing process and product information.

[0052] When making snus according to GothiaTek® standard, the typical main ingredients, besides tobacco, are water, sodium chloride (NaCl) and sodium carbonate (Na₂CO₃). Flavors and humectants are also common ingredients and additional food approved additives might be used. Sodium chloride is added mainly for its taste enhancing properties, but it also has a preservative effect which contributes to improved shelf life of the products. Sodium chloride lowers the water activity of the products, thus preventing micro-organisms from growing. Sodium carbonate is used to give the products their characteristic aroma profile, but also brings the pH to the slightly alkaline side. Sodium carbonate converts to baking soda immediately after it is added. Flavors used are generally natural or nature identical compounds that comply with food regulations. Flavors are usually dissolved in ethanol when added. Most of the ethanol evaporates during production; only trace quantities remain in the final products. Humectants, such as glycerol and propylene glycol, are normally added with the purpose of protecting the products from drying out. Humectants could also be used to improve the consistency of the products by providing a soft texture and enhanced stickiness to the snus material. According to the standard, there are two major steps in the manufacturing process of converting tobacco to a snus composition; a) grinding (or cutting) and sieving and b) snus-processing (see FIG. 1).

a) Grinding and Sieving

[0053] Tobacco flour is produced by batch grinding. Compressed tobacco is emptied from its cases and torn to large fragments which are cut to pieces. The cut tobacco pieces are dried and transported to a mill. The tobacco is ground and ground tobacco particles are sieved and separated into fractions. Too large particles are brought back to the mill for re-grinding. The cutting, grinding and sieving is done in equipment where foreign objects such as fragments of metallic material and stones are separated and removed from the tobacco. Three approved fractions are weighed in separate fractions scales. The weighed tobacco flour fractions are collected to pre-set quantities in a silo and blended by circulation. The blended tobacco flour is stored in a silo. Different types of tobacco flours are kept in separate silos.

b) Snus-Processing

[0054] The snus mixture is produced by batch processing and should be carried out in a closed system to minimize the risk of contamination from bacteria or foreign substances. Since, automatic feeding of tobacco and additives is preferred. The whole process may be computer controlled and can be run day and night, all week around. The process starts with loading of tobacco flour, water, sodium chloride (NaCl) and possibly additional additives, into a cylindrical blender. Loading is done while stirring. The loaded materials are mixed to a homogenous blend which is heated by injection of steam. The blend is then kept heated for several hours with

support of steam to ensure reduction of the natural bacterial flora in the tobacco and to bring texture, taste and color to the snus blend. Time, temperature and frequency of stirring during heat treatment, parameters specified for different snus blend qualities, are preferably controlled by a process computer program. The heat treatment is traditionally referred to as "sweating", but is to be seen as a pasteurization process. After heat treatment, the blend is chilled by flow of cold water through the blender jacket during stirring. Water, flavors, sodium carbonate and possibly additional additives is then added to the chilled blend. The blend is finally mixed to a homogenous snus material. The power of the mixing and the time period for the mixing are crucial parameters for the quality of the finished blend, since mixing has a great influence on the texture and consistency of the material. The finished blend is emptied from the blender for packing, as is in cans, or as pre-packed portions.

[0055] The method according to the second aspect of the invention, since it follows the procedure of GothiaTek® standard, implies hygienic handling of all ingredients and pasteurization of the loaded materials, thus assuring a final composition with negligible levels of bacteria.

[0056] According to a preferred embodiment of the second aspect of the invention the method comprises a heat treatment in step ii), wherein the temperature may be held at about 70-100° C. during approx. 1 to 30 hours, preferably approx. 10 hours, while stirring each quarter of an hour.

[0057] According to yet another preferred embodiment of the second aspect of the invention the method comprises a cooling step iii), wherein the temperature of the blend is cooled down to 15-30° C., preferably approx. 20° C., during 0.5 to 2 hours of applied cooling while stirring.

[0058] According to yet another preferred embodiment of the second aspect of the invention the manufacturing method is kept in a closed system and handling of all ingredients complies with food safety regulations.

EXAMPLES

[0059] All moist snuff compositions according to the present invention were manufactured in accordance with GothiaTek® standard, described herein above, adapted for manufacture of a non-tobacco moist snuff composition according to the present invention.

Example 1

Manufacturing of an Oral Non-Tobacco Moist Snuff Composition Comprising a Mixture of oat and Cocoa Fibers at 65/35 w % Proportion

[0060] Oat fibers (VITACEL® Oat Fiber HF 401, supplier LCH Kemiflor AB) and cocoa fibers (Ficao Cocoa Fibre, supplier Femtorp AB), were loaded in a dry and empty 4,200 L horizontal heat treatment mixer with plough shaped shovels on a centered shaft. Of the plant fiber materials loaded, 65 w % were oat fibers and 35 w % were cocoa fibers. The fibers were mixed to a homogenous blend. A solution of water, sodium chloride (NaCl) and glycerol was added to the fiber blend while stirring. Sodium chloride (NaCl) was added to an amount of 3.6 w/w % based on the dry weight of the final composition and glycerol was added to an amount of 5.4 w/w % of the dry weight of the final composition. The mixture was heat treated at a temperature of 70-100° C. for 10 hours accompanied by stirring of the mixture for five minutes every hour. Temperature was retained by intermittent injections of

steam (4 bar abs., about 140° C.). The mixture was then chilled to about 20° C. while stirring, by flow of cold water in the mixer jacket. The total water content in the chilled mixture was about 32 w/w % of the total weight. Dry additives were mixed into the chilled blend; sodium chloride (NaCl) and ammonium chloride. Sodium chloride (NaCl) (additional 6.7 w/w % of the dry weight of the final composition) and ammonium chloride (1.6 w/w % of the dry weight of the final composition). Flavorings were added and sodium carbonate (1.8 w/w % of the dry weight of the final composition), added as an aqueous solution, was added to adjust the mixture to an alkaline pH. By one last addition of water, the water content of the composition was adjusted to about 42 w/w %. Finally, the blend was mixed to a homogenous mixture.

[0061] The composition, perfectly resembling snus with its dark brown color and gently sticky texture, was packed as 1 g non-woven covered portions using equipment for packaging of finely divided moistened materials into individual portion packages (U.S. Pat. No. 6,135,120, "Device for packing of finely divided, moistened tobacco material", Löfman et al.) with excellent results of machinery efficiency. The final product was a portion-packed non-tobacco moist snuff composition which was evaluated by a sensory panel as a non-tobacco composition resembling portion-packed snus. The content of the ingredients in the final composition is given in Table 1. Analysis of the final composition proved a dietary fiber content of 60 w/w %, calculated on the dry weight of the final composition.

TABLE 1

Contents of the oral non-tobacco moist snuff composition according to Example 1.		
Product components	Amount of dry weight in the final composition (w/w %)	Amount in final composition (w/w %)
Dry oat fiber	51.1%	29.8%
Dry cocoa fiber	27.5%	16.1%
Sodium chloride (NaCl), total	10.3%	6.0%
Glycerol	5.4%	3.2%
Ammonium Chloride	1.6%	0.9%
Sodium Carbonate	1.8%	1.0%
Flavorings	2.3%	1.4%
Water		41.6%

Example 2

Manufacturing of an Oral Non-Tobacco Moist Snuff Composition Comprising a Mixture of oat and Cocoa Fibers at 80/20 w % Proportion

[0062] Following the procedure of Example 1 above, a plant fiber mixture of 80 w % of oat fibers (VITACEL® Oat Fiber HF 401, supplier LCH Kemiflor AB) and 20 w % of cocoa fibers (Ficao Cocoa Fibre, supplier Femtorp AB), was added to a 130 l heat treatment mixer with the same features as the mixer used in Example 1. A solution of water, sodium chloride (NaCl) and glycerol was added to the fiber blend while stirring. The composition was processed, chilled, prepared and packed according to the procedure described above in Example 1. Besides flavorings, water, additional sodium chloride (NaCl) and sodium carbonate (Na₂CO₃), ingredients with pH buffering properties were added after chilling. Packing of the composition into 1 g portion packages resulted in a

non-tobacco snuff product with sensory properties, such as taste, texture and appearance, perfectly resembling snus.

[0063] The content of the ingredients in the final composition is given in Table 2. The total dietary fiber content of the final composition was not analyzed, but based on the dietary fiber content in the oat fiber (about 88%) and the cocoa fibers (about 43%) used, the total dietary fiber content of the final composition should be about 60 w/w % by dry weight of the final composition.

TABLE 2

Contents of the oral non-tobacco moist snuff composition according to Example 2.		
Product components	Amount of dry weight in the final composition (w/w %)	Amount in final composition (w/w %)
Dry oat fiber	55.4%	31.8%
Dry cocoa fiber	14.4%	8.3%
Sodium chloride (NaCl), total	9.4%	5.4%
Glycerol	9.4%	5.4%
Ammonium Chloride	1.5%	0.8%
Sodium Carbonate	2.6%	1.5%
Flavorings	1.7%	1.0%
Ingredients for pH buffering	5.6%	3.2%
Water		42.6%

Example 3

Oral Non-Tobacco Moist Snuff Composition Comprising Cocoa Fibers and Corn Fibers

[0064] Two types of plant fibers, Corn Fibers (SOFAB-RAN™ F 184-400, supplier supplier AB R. Lundbergs) and Cocoa fibers (Ficao Cocoa Fiber, supplier Femtorp AB), were used in the manufacturing of a non-tobacco snuff composition. Of the total amount of fibers added, 83 w % were corn fibers and 17 w % were cocoa fibers. The fibers were loaded to an empty horizontal heat treatment mixer (4200 L) and ingredients (sodium chloride (NaCl), glycerol, powdered liquorice and water) were added. The mixture was blended, heat treated, chilled and prepared with additional ingredients (ammonium chloride, flavorings, sodium carbonate and water). The overall manufacturing process followed the procedures as described in Example 1. The content of the ingredients in the final composition is given in Table 3. Analysis of the final composition proved a dietary fiber content of 50 w/w %, calculated on total weight of the dry weight of the final composition.

[0065] The resulting composition had properties resembling snus and was efficiently packed into individual 1 g portions with the same packing technique as in Example 1.

TABLE 3

Contents of the oral non-tobacco moist snuff composition according to Example 3.		
Product components	Amount of dry weight in the final composition (w/w %)	Amount in final composition (w/w %)
Dry corn fiber	63.3%	37.1%
Dry cocoa fiber	13.0%	7.6%
Powdered liquorice	0.8%	0.5%
Sodium chloride (NaCl), total	10.5%	6.1%
Glycerol	6.4%	3.8%

TABLE 3-continued

Contents of the oral non-tobacco moist snuff composition according to Example 3.		
Product components	Amount of dry weight in the final composition (w/w %)	Amount in final composition (w/w %)
Ammonium Chloride	1.6%	0.9%
Sodium Carbonate	1.7%	1.0%
Flavorings	2.7%	1.6%
Water		41.4%

Example 4

Oral Non-Tobacco Moist Snuff Composition Comprising Cocoa Fibers

[0066] A non-tobacco moist snuff composition with cocoa fibers (Ficao Cocoa Fiber, supplier Femtorp AB) was prepared according to the procedure of Example 1. The horizontal heat treatment mixer used was a 130 I mixer. Cocoa fibers, sodium chloride (NaCl), glycerol and water were heat treated at about 70-100° C. during 10.5 h. Additional additives, additional sodium chloride (NaCl), ammonium chloride, powdered liquorice, flavorings, sodium carbonate and water, were added after chilling. The content of the ingredients in the final composition is given in Table 4. The total dietary fiber content of the final composition was not analyzed, but based on the dietary fiber content in the cocoa fibers used (55% content of dietary fibers), the total dietary fiber content of the final composition should be about 46 w/w % by dry weight of the final composition.

[0067] The resulting composition had taste, texture and color resembling snus in loose, particulate form. Hence, the composition could very well be presented as a non-tobacco moist snuff product in loose, particulate form.

TABLE 4

Contents of the oral non-tobacco moist snuff composition according to Example 4.		
Product components	Amount of dry weight in the final composition (w/w %)	Amount in final composition (w/w %)
Dry cocoa fiber	78.7%	45.4%
Powdered liquorice	0.9%	0.5%
Sodium chloride (NaCl), total	10.3%	5.9%
Glycerol	5.3%	3.1%
Ammonium Chloride	1.7%	1.0%
Sodium Carbonate	1.8%	1.0%
Flavorings	1.3%	0.7%
Water		42.4%

[0068] The process used for manufacturing of the non-tobacco moist snuff compositions according to Example 1-4 is further illustrated in FIG. 2.

[0069] Formulas for Calculation of Content, Based on dry Weight of the Final Composition:

Calculation of salt content Formula (I)

$$\begin{aligned} & (w/w \% \text{ by dry weight of the final composition}^1): \\ \text{salt content (w/w \%)} = & \frac{\text{Amount of salt [kg]}}{\text{Total dry weight of the composition [kg]}} \times 100[\%] \end{aligned}$$

Calculation of glycerol content Formula (II)

$$\begin{aligned} & (w/w \% \text{ by dry weight of the final composition}^1): \\ \text{glycerol content (w/w \%)} = & \frac{\text{Amount of glycerol [kg]}}{\text{Total dry weight of the composition [kg]}} \times 100[\%] \end{aligned}$$

Note: ¹Total dry weight should be calculated in relation to water content measurement by Karl Fischer titration

Examples of suppliers of, and dietary fiber content in, plant fibers suitable in the manufacturing of the non-tobacco moist snuff composition according to the present invention:

[0070] Oat fibers (e.g., VITACEL®401, supplier LCH Kemiflor AB, dietary fiber content approx. 88%)

[0071] Cacao fibers (e.g., FICAO, supplier Femtorp AB, dietary fiber content approx. 43.5±5%)

[0072] Apple fibers (e.g., VITACEL® Bio-Apple Fiber AF 12, supplier LCH Kemiflor AB, dietary fiber content approx. 55±5%).

[0073] Sugar beet fibers (e.g., Fibrex®, supplier Danisco Sugar AB, dietary fiber content approx. 67-73%).

[0074] Potato fibers (e.g., VITACEL®KF 200, supplier LCH Kemiflor AB, dietary fiber content approx. 74%).

[0075] Coarse maize (e.g., SOFABRAN F 184-400 (Maize), supplier AB R. Lundbergs, dietary fiber content approx. 70-80%).

[0076] Fine maize, (e.g., SOFABRAN F 184-80 (Maize), supplier AB R. Lundbergs, dietary fiber content approx. 70-80%).

[0077] Buckwheat fibers (e.g., SOFABRAN F 170 (buckwheat), supplier AB R. Lundbergs, dietary fiber content approx. 91%).

[0078] Powdered cellulose (e.g., VITACEL®, supplier LCH Kemiflor AB, dietary fiber content approx. 98%).

[0079] Bamboo fibers (e.g., VITACEL®, supplier LCH Kemiflor A.B. dietary fiber content approx. >94%),

[0080] Citrus fibers (e.g., Herbacel AQ Plus, supplier Engelhardt, dietary fiber content approx. 88-93%)

[0081] Various embodiments of the present invention have been described above but a person skilled in the art realizes further minor alterations, which would fall into the scope of the present invention. The breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents. Other aspects, advantages and modifications within the scope of the invention will be apparent to those skilled in the art to which the invention pertains.

1. A non-tobacco moist snuff composition for oral use comprising one or more types of plant fibers with a high dietary fiber content, wherein the dietary fiber content in the composition is 15-90 w/w % based on the dry weight of the composition.

2. The non-tobacco moist snuff composition according to claim 1, wherein the dietary fibre content in the composition is 20-85 w/w % based on the dry weight of the composition.

3. The non-tobacco moist snuff composition according to claim 1, wherein the total amount of dietary fiber content in the composition is 25-80 w/w % based on the dry weight of the composition.

4. The non-tobacco moist snuff composition according to claim 1, wherein the plant fibers are a mixture of two or more types of plant fibers.

5. The non-tobacco moist snuff composition according to claim 1, wherein the plant fibers are selected from the group consisting of maize fibers, oat fibers, tomato fibers, barley fibers, rye fibers, sugar beet fibers, buck wheat fibers, potato fibers, cellulose fibers, apple fibers, cocoa fibers, bamboo fibers, citrus fibers, and combinations thereof.

6. The non-tobacco moist snuff composition according to claim 5, wherein the plant fibers comprise oat fibers.

7. The non-tobacco moist snuff composition according to claim 5, wherein the plant fibers comprise cocoa fibers.

8. The non-tobacco moist snuff composition according to claim 5, wherein the plant fibers are a mixture of oat and cocoa fibers.

9. The non-tobacco moist snuff composition according to claim 1, further comprising one or more humectants, NaCl and optionally other ingredients.

10. The non-tobacco moist snuff composition according to claim 9, further comprising at least one ingredient selected from the group consisting of caffeine, red clover, Echinacea, Green tea extract, Maca, Mate, Matcha, Roiboos, ginger, rose hips, white clover, sweet clover, ginseng, guarana, arctic root, rosemary, buckthorn, bilberry, cranberry, lingon berry, anise, clove, gum tragacanth, gum arabic, gum acacia, gum karaya, locust bean gum, xanthan gum, and combinations thereof.

11. A non-tobacco moist snuff composition according to claim 10, wherein the at least one ingredient is caffeine, guarana and/or ginseng.

12. The non-tobacco moist snuff composition according to claim 9, further comprising one or more additional salts, dyes, flavours and flavour additives.

13. The non-tobacco moist snuff composition according to claim 9, wherein the flavour additive is selected from extracts from fruits, leaves, berries, vegetables, barks and herbs or a combination thereof.

14. The non-tobacco moist snuff composition according to claim 12, wherein the additional salt is a carbonate or ammonium chloride.

15. The non-tobacco moist snuff composition according to claim 9, wherein the humectant is glycerol or propylene glycol or a combination thereof.

16. The non-tobacco moist snuff composition according to claim 1, wherein the composition comprises 30 to 50 w/w % water based on the total weight of the composition.

17. The non-tobacco moist snuff composition according to claim 1, wherein the composition is provided in form of pouches, lozenges or as is in particular form in cans or boxes.

18. A method of manufacturing a non-tobacco moist snuff composition according to claim 1, comprising:

- a) providing the plant fibers;
- b) processing the plant fibers provided in step a), preceded by mixing, if more than one type of plant fibers is used or if fibers with different size distribution are used; wherein step b) comprises:

- i) adding water, one or more humectants, and NaCl and optionally other ingredients to the plant fibers under stirring to form a mixture;
- ii) heating and keeping the mixture heated, thus achieving a pasteurisation of the mixture,
- iii) cooling the moist snuff mixture; and

- iv) optionally adding other ingredients such as one or more additional salts, humectants, dyes, flavours and flavour additives, such as liquorice and ammonium chloride,
- c) and optionally packing, either in pouches, which is preferred, or as is in cans.

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