[004] There is thus a need to provide food products, such as confectionary food items that are consumed by children or adults, that have no added sugars to them, however are not compromised with respect to taste and consistency of the product achieving a high compliance of consumption.

SUMMARY

[004a] In one aspect of the present disclosure, there is provided a food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product has no added sugar or any stereoisomers thereof or any sugar substitutes; and is a ready to consume gel confectionary product.

[004b] In another aspect of the present disclosure, there is provided a food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product is free of sugar or any stereoisomers thereof or any sugar substitutes; and is a ready to consume gel confectionary product.

[004c] In a further aspect of the present disclosure, there is provided a food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product comprises 0 to 8% weight of sugar or any sugar substitutes; and is a ready to consume gel confectionary product.

[004d] In another aspect of the present disclosure, there is provided a product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one emulsifying agent, at least one active agent and water; wherein said product has no added sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.

[004e] In a further aspect of the present disclosure, there is provided a process for the preparation of a food product disclosed herein, comprising the steps of: (a) preparing a homogenized mixture of at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent and at least one buffering agent and water; (b) combining said homogenized mixture with at least one plant-based fiber; (c) forming a food product having no added sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.

[005] The present disclosure thus provides a food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product has no added sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.

[006] The present disclosure provides a food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product is free of sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.

[007] The present disclosure provides a food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product comprises between 0 to 8%weight of sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.

[008] When referring to a "***plant-based fiber***" it should be understood to encompass any type of dietary fiber that is derived, extracted or manufactured from a plant (fruit, vegetable or a combination thereof) or is synthetically or semi-synthetically manufactured to have a similar structure as the plant sourced fiber. Said fibers are plant-based carbohydrates which,

unlike other carbohydrates (such as sugars and starch), is not digested in the small intestine and so reaches the large intestine or colon.

[009] In some examples, said plant-based fiber source is selected from chicory root, algae, cassava root and any combinations thereof. In some other examples, said at least one plant-based fiber is selected from fructo-oligosaccharide (FOS), inulin, chicory root fibers, Isomaltooligosaccharide (IMO) and any combinations thereof.

[0010] In some examples, said at least one plant-based fiber is at least 60% of said product. In some examples, said at least one plant-based fiber is at least 70% of said product. In some examples, said at least one plant-based fiber is at least 80% of said product. In other examples, said at least one plant-based fiber is between 70% and 90 % of said product. In other examples, said at least one plant-based fiber is between 80% and 90 % of said product. In further examples, said at least one plant-based fiber is 60, 61, 62, 63, 64, 65, 66, 67, 6, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89 or 90 % of said product. In some examples, said at least one plant-based fiber is at most 90% of said product.

[0011] The term "***plant-based starch***" encompasses any type of starch that is derived, extracted or manufactured from a plant (fruit, vegetable or a combination thereof) or is synthetically or semi-synthetically manufactured to have a similar structure as the plant sourced starch.

[0012] In some examples, said at least one plant-based starch is selected from tapioca starch, corn starch, potato starch, native corn starch, arrowroot, sago and any combinations thereof.

[0013] In some examples, said at least one plant-based starch is at least 0.01% of said product. In other examples, said at least one plant-based starch is between 0.01% and

5.0 % of said product. In further examples, said at least one plant-based starch is 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.1, 1.2, 1.3 , 1.4, 1.5, 1.6, 1.7, 1.8, 1.9. 2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5% of said product. In some examples, said at least one plant-based starch is at most 5% of said product.

[0014] The term "***gel forming polysaccharide***" should be understood to encompass any type of polysaccharide that is capable of forming a stable soft solid or semi-solid gel material of two or more components, one of which is a liquid (for example water) present in substantial quantity. It is composed of crosslinked polymeric molecules to form tangled interconnected networks immersed in liquid medium. At the molecular level, gelation is the process which imparts stress resisting bulk character (solid properties) due to continuous framework of networks of polymer chains that extends throughout the gel phase.

[0015] In some examples, said at least one gel forming polysaccharide is selected from Agar Agar, Carrageenan, Gum Arabic, Guar gum, Xanthan gum, locust bean gum, and any combinations thereof.

[0016] In other examples, said at least one stable gel forming polysaccharide is at least 0.01% of said product. In further examples, said at least one stable gel forming polysaccharide is between 0.01 and 5 % of said product. In further examples, said at least one stable gel forming polysaccharide is 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9. 2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5% of said product. In other examples, said at least one stable gel forming polysaccharide is at most 5% of said product.

[0017] In some examples, said at least one plant-based gelling agent is selected from pectin including but not limited to apple pectin, citrus pectin, and any combinations thereof.

[0018] It should be understood that said at least one plant-based gelling agent used in a product of the present disclosure consists of at least one plant or parts thereof or is synthetically or semi-synthetically manufactured to have a similar structure as the plant sourced, and thus a product of the present disclosure is devoid of any animal parts or products and is considered to be suitable for consumption of vegetarians and vegans.

[0019] In some examples, said at least one plant-based gelling agent is at least 1% of said product. In other examples, said at least one plant-based gelling agent is between 1 and 2 % of said product. In further examples, said at least one plant-based gelling agent is 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9 or 2 % of said product. In some examples, said at least one plant-based gelling agent is at most 2% of said product.

[0020] In some examples, at least one buffering agent is selected from Tri Sodium Citrate, Sodium Ascorbate and any combinations thereof.

[0021] In some other examples, said at least one emulsifying agent is at least 0.1% of said product. In other examples, said at least one emulsifying agent is between 0.1 and 0.5 % of said product. In other examples, said at least one emulsifying agent is 0.1, 0.15, 0.2, 0.25, 0.3, 0.35, 0.4, 0.45 or 0.5 % of said product. In some other examples, said at least one emulsifying agent is at most 0.5% of said product.

[0022] In some examples, said food product has water activity (aw) of between about 0.5 and 0.65. In other examples, said food product has aw of at least 0.50. In other examples, said food product has aw of at least 0.55. In other examples, said food product has aw of at least 0.60. In other examples, said food product has aw of at least 0.65.

[0023] The water activity (aw) of a food is the ratio between the vapor pressure of the food itself, when in a completely undisturbed balance with the surrounding air media, and the vapor pressure of distilled water under identical conditions. The moisture condition of a product can be measured as the equilibrium relative humidity (ERH) expressed in percentage or as the water activity expressed as a decimal.

[0024] The aw range of the product of the present disclosure allows it to be stable under long term storage in ambient temperature (for 3 years) with minimal to substantially no growth of bacteria, yeasts, mold or any other microorganism.

[0025] In some examples, the ratio weight% between said at least one plant-based fiber and said at least one plant-based starch in a product of the present disclosure is between about 80 to about 150.

[0026] In other examples, the ratio weight% between said at least one stable gel forming polysaccharide and said at least one plant-based gelling agent in a product of the present disclosure is between about 1 to 5.

[0027] In other examples, the ratio between said at least one plant-based fiber and at least one stable gel forming polysaccharide in a product of the present disclosure is between about 0.001 to about 0.01.

[0028] In other examples, the ratio weight% between said at least one plant-based fiber and at least one plant-based gelling agent in a product of the present disclosure is between about 30 to 60.

[0029] In some examples, the ratio weight% between said at least one plant-based starch and at least one stable gel forming polysaccharide in a product of the present disclosure is about 1 to 5.

[0030] In some examples, the ratio weight% between said at least one plant-based starch and at least one plant-based gelling agent in a product of the present disclosure is between about 1 to 5.

[0031] In other examples, the ratio weight% between said at least one plant-based fiber and at least one buffer in a product of the present disclosure is between about 0.001 to about 0.01.

[0032] In other examples, the ratio weight% between said at least one plant-based starch and at least one buffer in a product of the present disclosure is between about 80 to about 150.

[0033] In other examples, the ratio weight% between said at least one stable gel forming polysaccharide and at least one buffer in a product of the present disclosure is between about 0.5 to about 5.

[0034] In other examples, the ratio weight% between said at least one plant-based gelling agent and at least one buffer in a product of the present disclosure is between about 1 to 5.

[0035] The present disclosure further provides a manufactured food product comprising one or more food product as disclosed herein above and below. Said manufactured food product of the present disclosure may be baked, mixed, boiled, cooked, sautéed, steamed, fried, wrapped, extruded, extracted or any type of food manufacturing process. Said manufactured food product may be solid, liquid, semi-solid, spreadable food product. Non-limiting examples of manufactured food product that comprise a food product of the present disclosure includes juice, yogurt, non-dairy yogurt, tofu, cheese, mayonnaise, peanut butter, chocolate, candy, chocolate spread, cake, cookie, and so forth.

[0036] A food product or product of the present disclosure is a ready to consume (i.e. no need for further preparation or treatment before consuming a product of the present disclosure) chewable-gel confectionary product may be any kind of edible product, including

but not limited to a candy, a gummy candy, a gum, a chewable snack, a chewable candy, a dissolvable oral strip and so forth. In some examples, a ready to consume gel confectionary product of the present disclosure has a homogeneous consistency. In other examples, a ready to consume gel confectionary product of the present disclosure comprises at least two ready-to-consume gel confectionary products of the present disclosure.

[0037] The present disclosure further provides a product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one emulsifying agent, at least one active agent and water; wherein said product has no added sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.

[0038] Thus, a product of the present disclosure is capable to deliver said at least one active agent to a subject in need thereof, by consuming said gel confectionary product, having a pleasant taste and agreeable consistency.

[0039] In some examples, said at least one active agent is selected from: a pro-biotic agent, a dietary supplement agent, an anti-inflammatory agent, an anti-oxidizing agent, a pharmaceutically active agent and any combinations thereof. In some examples, said at least one active agent is a vitamin, a NSAID, CBD, cannabis extract, omega 3, herbal oil, and any combination thereof.

[0040] In some examples, said at least one active agent is at least 0.01% of said product. In other examples, said at least one active agent is between 0.01 and 30% of said product. In other examples, said at least one active agent is 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 or 30% of said product.

[0041] A food product or a product of the present disclosure said food product has no added sugar or any stereoisomers thereof or any sugar substitutes. A food product or a product of the present disclosure said food product is sugar free including any stereoisomers thereof or any substitutes thereof.

[0042] When referring to a food product of the present disclosure having no added sugar or any stereoisomer thereof or being sugar free, it should be understood to relate to such product excluding from its composition any type of mono- and/or di-saccharide, or any natural or unnatural stereoisomers thereof, up to and not exceeding 8% by weight of the product. In some examples, a product of the present disclosure comprises 0 – 8% by weight mono- and/or di-saccharide of the product. In some examples, a product of the present disclosure comprises 0 – 3% by weight mono- and/or di-saccharide of the product. In some examples, a product of the present disclosure comprises 0 – 1% by weight mono- and/or di-saccharide of the product. In some examples, a product of the present disclosure comprises 0 – 0.5% by weight mono- and/or di-saccharide of the product. In some examples, a product of the present disclosure comprises 0 – 0.05% by weight mono- and/or di-saccharide of the product. In some examples, a product of the present disclosure comprises 0 – 0.01% by weight mono- and/or di-saccharide of the product.

[0043] In some examples, said mono- and/or di-saccharide is a result of polysaccharide degradation product that is formed during the determination of the sugar profile of a product known in the food industry and regulation of food, for example in accordance with AOAC 977.20, thus under such examples, no sugar, its stereoisomers or substituents thereof is/are added during the manufacturing of the product.

[0044] Examples of such include but are not limited to D-and/or L-glucose, D-and/or L-fructose, D-and/or L-galactose, D-and/or L-sucrose, D- and/or L-isomaltulose, D- and/or L-

trehalose, D- and/or L-psicose, D- and/or L-tagatose, D- and/or L-sorbose. It should be understood that no such type of sugar is added to the product in an amount that exceeds 8% weight of the product (in some examples 0 – 8% weight of the product), while being manufactured and thus, a product of the present disclosure is substantially free of sugar or any stereoisomer thereof and any sugar substitutes.

[0045] When referring to food product of the present disclosure having no added sugar substitute or any stereoisomer thereof it should be understood to relate to such product excluding from its composition any artificial food additive that provides a sweet taste like that of sugar while containing significantly less food energy than sugar-based sweeteners, making it a zero-calorie (non-nutritive) or low-calorie sweetener. Artificial sweeteners may be derived through manufacturing of plant extracts or processed by chemical synthesis. Examples of such include, but are not limited to acesulfame potassium, aspartame, cyclamate, mogrosides, saccharin, stevia, sucralose, sugar alcohols (erythritol, xylitol, and sorbitol).

[0046] Thus, the products of the present disclosure (excluding a manufactured product disclosed herein above) is defined to have (i) no amount of sugar, or any other ingredient that contains sugar or any stereoisomers thereof or any sugar substitutes that functionally substitute for added sugar, is added during processing or packaging, up to and not exceeding 8%weight of the product (in some examples 0 – 8% of the product); and/or (ii) the product does not contain an ingredient containing added sugars such as jam, jelly, or concentrated fruit juice; and/or (iii) the sugars content has not been increased above the amount present in the ingredients by some means such as the use of enzymes, except where the intended functional effect of the process is not to increase the sugars content of a food, and a functionally insignificant increase in sugars results.

[0047] In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises less than about 8%weight of sugar or substitutes thereof. In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises 0 to 8%weight of sugar or substitutes thereof. In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises 0 to 5%weight of sugar or substitutes thereof. In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises 0 to 1%weight of sugar or substitutes thereof. In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises 0 to 0.5%weight of sugar or substitutes thereof. In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises 0 to 0.1%weight of sugar or substitutes thereof. In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises 0 to 0.05%weight of sugar or substitutes thereof. In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises 0 to 0.01%weight of sugar or substitutes thereof.

[0048] In some examples, a product considered to exclude from its composition any type of sugar (mono- and/or di-saccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises less than about 0.5g of sugar or substitutes thereof.

[0049] In some examples, a product considered to exclude from its composition any type of sugar (monosaccharide), or any natural or unnatural stereoisomers thereof or substituted thereof comprises about less than 0.5, 0.4, 0.3, 0.2, 0.1, 0.09, 0.08, 0.07, 0.06, 0.05, 0.04, 0.03,0.02, 0.01g of sugar or substitutes thereof.

[0050] In some examples a product according to the present disclosure has less than 0.5 g of sugar (per product weighing up to 6 gr). In some examples a product according to the present disclosure has less than 0.5, 0.4, 0.3, 0.2, 0.1, 0.09, 0.08, 0.07, 0.06, 0.05, 0.04, 0.03, 0.02, 0.01g of sugar (per product weighing up to 6 gr).

[0051] In some examples, a product of the present disclosure further comprises at least one additional agent selected from a coloring agent, at least one flavoring agent, at least one fragrance, and any combinations thereof.

[0052] In some examples a product of the present disclosure has a pH of between about 2 to 4. In some examples a product of the present disclosure has a pH of about 2.0, 2.5, 3.0, 3.5, 4.0. In other examples a product of the present disclosure has a BX (Brix) of between about 70% to 85%. In other examples a product of the present disclosure has a BX (Brix) of about 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 805, 81%, 82%, 83%, 84%, 85%.

[0053] The present disclosure further provides a process for the preparation of a food product of the present disclosure, comprising the steps of: (a) preparing a homogenized mixture of at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent and at least one buffering agent and water; (b) combining said homogenized

CLAIMS

What is claimed is:

1. A food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product has no added sugar or any stereoisomers thereof or any sugar substitutes; and is a ready to consume gel confectionary product.

2. A food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product is free of sugar or any stereoisomers thereof or any sugar substitutes; and is a ready to consume gel confectionary product.

3. A food product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one buffer agent and water; wherein said food product comprises 0 to 8% weight of sugar or any sugar substitutes; and is a ready to consume gel confectionary product.

4. A food product according to any one of the preceding claims, wherein said at least one plant-based fiber is selected from fructo-oligosaccharide (FOS), inulin, chicory root fibers, Isomaltooligosaccharide (IMO) and any combinations thereof.

5. A food product according to any one of the preceding claims, wherein said at least one plant-based fiber is at least 80% of said product.

6. A food product according to any one of the preceding claims, wherein said at least one plant-based starch is selected from tapioca starch, corn starch, potato starch, native corn starch, arrowroot, sago and any combinations thereof.

7. A food product according to any one of the preceding claims, wherein said at least one plant-based starch is at least 0.01% of said product.

8. A food product according to any one of the preceding claims, wherein said at least one stable gel forming polysaccharide is selected from Agar Agar, Carrageenan, Gum Arabic, Guar gum, Xanthan gum, locust bean gum, and any combinations thereof.

9. A food product according to any one of the preceding claims, wherein said at least one stable gel forming polysaccharide is at least 0.01% of said product.

10. A food product according to any one of the preceding claims, wherein said at least one plant-based gelling agent is pectin.

11. A food product according to any one of the preceding claims, wherein said at least one plant-based gelling agent is at least 1% of said product.

12. A food product according to any one of the preceding claims, wherein said at least one buffering agent is selected from Tri Sodium Citrate, Sodium Ascorbate and any combinations thereof.

13. A food product according to any one of the preceding claims, further comprising at least one emulsifying agent being at least 0.1% of said product.

14. A product comprising at least one plant-based fiber, at least one plant-based starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent, at least one emulsifying agent, at least one active agent and water; wherein said product has no added sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.

15. A product according to claim 14, wherein said at least one active agent is selected from: a pro-biotic agent, a dietary supplement agent, an anti-inflammatory agent, an anti-oxidizing agent, a pharmaceutically active agent and any combinations thereof.

16. A product according to claims 14 or 15, wherein said at least one active agent is at least 0.01% of said product.

17. A product according to any one of the preceding claims, having less than 0.5 g of sugar per 6gr of product.

18. A process for the preparation of a food product according to claim 1, comprising the steps of: (a) preparing a homogenized mixture of at least one plant-based

starch, at least one stable gel forming polysaccharide, at least one plant-based gelling agent and at least one buffering agent and water; (b) combining said homogenized mixture with at least one plant-based fiber; (c) forming a food product having no added sugar or any stereoisomers thereof or any sugar substitutes and is a ready to consume gel confectionary product.