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(54) Title: NOVEL COMBINATIONS COMPRISING KONJAC MANNAN, THEIR COMPOSITIONS AND USES THEREOF

(57) Abstract: The present invention relates to novel solid fast dissolving or fast dispersing combinations containing Konjac mannan, to processes for preparing drinkable compositions comprising them, to drinkable compositions comprising them and to their uses as a food supplement/beverage supplement, in particular, but not limited to, in the managing of weight loss or overweight reduction, and in cholesterol and blood sugar levels control in a subject in need.

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NOVEL COMBINATIONS COMPRISING KONJAC MANNAN, THEIR COMPOSITIONS AND USES THEREOF

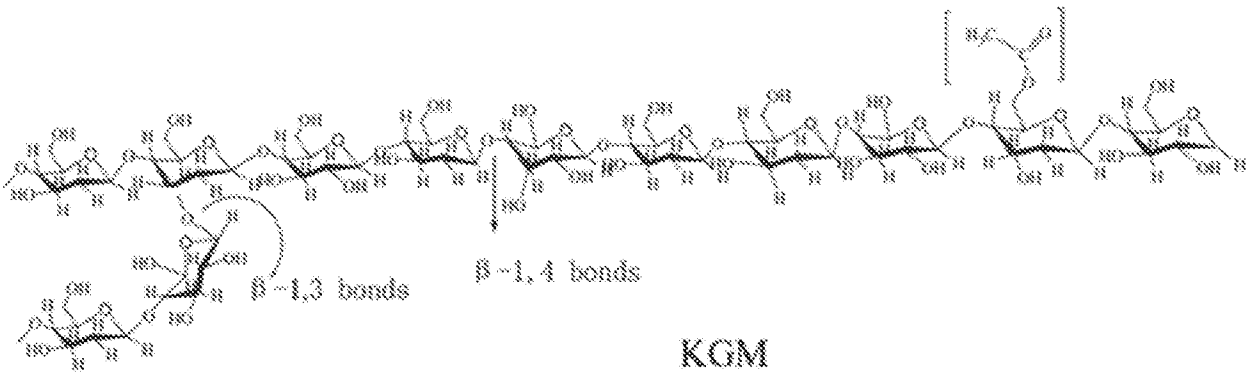
The present invention relates to novel solid fast dissolving or fast dispersing combinations containing Konjac mannan, to processes for preparing drinkable compositions comprising them, to drinkable compositions comprising them and to their uses as a food supplement/beverage supplement, in particular,, but not limited to, in the managing of weight loss or overweight reduction, and in cholesterol and blood sugar levels control in a subject in need.

Konjac is an Asian plant with a starchy root rich in fiber called glucomannan. Konjac mannan (or Konjac glucomannan) is a high molecular weight, water-soluble, non-ionic glucomannan found in tubers of the Amorphophallus konjac plant (Konjac Mannan - an overview Science Direct Topics; Handbook of Hydrocolloids (Second Edition), 2009.

Konjac flour is produced from the corms of the *Amorphophallus* konjac plant, a tropical perennial crop. The corms of the plant contain about 30%–50% glucomannan gum. When the corms are dried and milled, the resulting powder is konjac flour. The flour constitutes 60%–80% of the dried root corm. The corms grow below ground and are harvested at 2 kg for commercial processing. They are then washed and cut into thin slices, which are then dried and dry-milled into powder. The powder is separated, usually by cyclone or wind separation, producing crude konjac flour. Glucomannans in which some of the mannose residues are replaced by D-glucose are found in softwoods, tubers, and bulbs.

Konjac glucomannan (KGM) is a linear random copolymer of (1-4) linked beta-D-mannose and beta-D-glucose. It has mannose and glucose units at molar ratio of 1.6:1 with a low degree of acetyl groups (approximately 1 acetyl group per 17 residues) at the C-6 position. The degree of water solubility is controlled by the presence of the acetyl units.

The natural polysaccharide Konjac glucomannan (hereinafter referred to as KGM; see, for example Formula (I)) is a water-soluble and non-ionic polymer which is mainly composed of glucomannan, whose glucose and mannose units are connected by β-1,4-linkages, with a low degree of acetyl groups at the side chain C-6 position, as shown in Formula (I):



KGM

(I)

The β-1,4-linkages are not digested by human enzymes of the microbiota in the human GI tract. This is due to the

β-glycosidic linkages between the mannose and glucose molecules, which cannot be hydrolysed by pancreatic amylase or salivary amylase. This means that it passes into the colon without being digested. Once it is in the colon, it is fermented by the native flora to produce glucomannan-oligosaccharides. Because it is not digested immediately, konjac glucomannan can increase feelings of satiety, leading the consumer to eat less.

KGM has been widely used in food industry as it has been authorized as a food additive in Europe and classified as GRAS (Generally Recognized as Safe) by the FDA (Food and Drug Administration.

However, despite its interesting beneficial properties, the KGM powder used as such shows too many drawbacks. For example, after adding 1g KGM powder (high molecular weight) in 99 g water at a temperature of 25°C under constant stirring with, for example, a spoon it can take up to 10-15 minutes to form a gel in water. To have a healthy effect from the KGM, it is preferred to use a high molecular weight KGM and due to this high molecular weight, the dissolution or gel formation of the KGM powder in water is time consuming for a consumer, and the formation of lumps (agglomeration of KGM in water) is a further disadvantage. Furthermore, the resulting gel is very stiff and does not flow easily out of the drinking glass to the mouth.

Further, it has a very bad mouthfeel, and the taste of the resulting gel is not acceptable. In addition to the above, the gel colour is grayish/grey, therefore it is not very appealing, and its viscosity makes difficult to swallow it. According to EFSA, to reduce overweight it has to be in-taken three times a day (at 1 g level, 3x1g/day); it is therefore self-evident that the above drawbacks are not in favour of the compliance.

Therefore, it remains very high a need to provide an effective solution for the administration of KGM, which overcomes the drawbacks and inconveniences showed above which is easy to be prepared and is able to meet a level of compliance much higher.

The patent application CN1146867A discloses a Konjak jelly with a lipid-lowering and weight-reducing health-care function. The preparation is complex: it involves a heating step followed by filtration and cooling.

The patent application CN105901269A discloses a Konjac tablet candy for weight management.

The patent application CN101564123A discloses a konjac vinegar health jelly and a preparation method thereof. The preparation is complex: it involves a pre-dissolution step followed by filtration and addition to hot water, stirring and subsequent heating to 80-90°C for a long time (40-50 minutes) to complete dissolution, and finally further filtration.

The patent application CN108041570A discloses a food additive comprising Konjac gum, Arabic gum and polyphosphate salts to be added to a food material for obtaining a good emulsification, stability, thickening, water retention.

The technical problem that the present invention addresses and solves is to provide a solid fast dissolving or fast dispersing combination or composition of high molecular weight KGM, useful for preparing, for example, RTD beverage or another water-based fluid product for oral use containing high molecular weight KGM, that is easy to prepare (also with the only aid of a spoon), stable, easy to swallow and with an appealing mouthfeel, taste and colour.

The solid (e.g, powder) compositions for instant (or RTD, ready to drink) beverage according to the present

invention are particularly advantageous and offer great compliance for those taking them. They are easy to prepare, stable, easy to swallow and suitable for a wide range of individuals, including the elderly and children. Usually they can be poured into water, or another water-based fluid, and quickly and easily, with the only aid of a spoon, transformed into a drinkable fluid having an appealing mouthfeel, taste and colour.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a simulation of fluid KGM behaviour after ingestion. After the ingestion of a water formulation comprising KGM, the water penetrates into the tissue or blood stream in the body. To simulate the vanishing of water from the formulation a series of experiments was made; gel formation occurs again when the water is no longer a significant part of the formulation and gel formation lowers food craving.

DETAILED DESCRIPTION OF THE INVENTION

As a result of extensive research and development, the Applicant addresses and solves the above requirements by providing an innovative combination that allows KGM powder composition to be quickly and easily diluted in water, or another water-based fluid, resulting in a drinkable, stable and easy-to-take composition.

The KGM powder composition of the invention by adding a fluid leads preferably to:

- a fluid KGM composition, or
- a fluid gel KGM composition, or
- an effervescent fluid KGM composition (e.g., if the KGM powder composition contains an effervescent system), or
- an effervescent fluid gel KGM composition (e.g., if the KGM powder composition contains an effervescent system).

In the context of the present invention, the term “fluid” may have, for example, the meaning of water, a translucent/transparent or colored water-based system, a milk (white fluid), a fluid similar to milk (milk substitute, plant-based milk, non dairy substitute, non-dairy beverage, instant milk), a beverage (non-alcoholic, alcoholic), a drink (fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink), a nectar, a juice a coffee, a cappuccino, a smoothie, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao.

In the context of the present invention, the term “fluid gel” may have, for example, the meaning of a system that is not a stiff gel (not flowable) but a flowable system (e.g., from a beverage glass so that a consumer can easily drink it). A fluid gel is a translucent/transparent gel (water based KGM system) or a white composition (milk-like appearance) with higher viscositiy so that a fluid gel-like KGM composition results that is drinkable) or a colored fluid gel KGM composition so that a colored fluid gel KGM composition results that is drinkable.

Preferably, a fluid gel of the invention may contain an effervescent system (e.g., mousse-like transparent or white or colored appearance). A mousse is a soft, light, and airy system, that may contain bubbles of CO2 to give it a light and airy texture.

In the context of the present invention, the term “fluid composition” and “fluid gel composition” mean that they flow easily out from the drinking glass (or other containers) to the mouth of a consumer or from a spoon to the mouth of the consumer.

In the context of the present invention, the expression “fast dissolving or fast dispersing” means that, when a solid powder combination or composition of the invention is poured into a water-based fluid at a temperature from 18 °C to 40°C, preferably from 18°C to 25 °C, and stirred, preferably with the aid of a spoon, it easily gives, within a time from 10 seconds to 5 minutes, preferably from 1 minute to 3 minutes, a solution or a homogeneous fine dispersion free of lumps, insoluble bottom residue, precipitates.

The Applicant has found a powder combination or composition comprising KGM that is able to be quickly and easily diluted in a water-based fluid (e.g., water) and to reduce the formation of lumps, improve the flow behaviour of a water-based composition out of a drinking glass, and the viscosity of KGM powder when diluted in water or another water-based fluid, improving the mouthfeel of KGM, its taste, and the colour of the final drinkable composition.

According to one of its aspects, the subject-matter of the present invention relates to a solid combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with at least one further dissolving or dispersing aid component (i) to (ix) which is selected from group comprising or, alternatively, consisting of:

i. at least one arabic gum, and at least one water-soluble salt, as defined in the present invention; and/or
ii. at least one arabic gum, at least one water-soluble salt, as defined in the present invention, and at least one acid; preferably at least one hydroxy acid, as defined in the present invention; more preferably, citric acid and/or tartaric acid; and/or
iii. at least one water-soluble salt and, optionally, at least one acid; preferably, at least one hydroxy acid, as defined in the present invention; and/or
iv. at least one effervescent system, as defined in the present invention and, optionally, at least one water-soluble salt, as defined in the present invention; and/or
v. at least one arabic gum, an effervescent system, as defined in the present invention and, optionally, at least one water-soluble salt, as defined in the present invention; and/or
vi. at least one sugar alcohol, preferably at least one sugar alcohol erythritol, as defined in the present invention; and/or
vii. at least one sugar alcohol, preferably at least one sugar alcohol erythritol, as defined in the present invention, and at least one component selected from i. to ix. (not vii); and/or
viii. at least one acid, preferably at least one hydroxy acid; and/or
ix. at least one arabic gum and at least one acid, preferably at least one hydroxy acid, or their mixtures thereof, preferably in combination with one or more flavours and/or colorants and/or sweetener and/or oils (lipids) and/or surfactants and/or actives as defined above.

With reference to said at least one further component (i) to (ix), the term “component” herein includes either a single substance or mixture of substances thereof.

Konjac glucomannan (KGM) is a known and commercially available compound having for example CAS RN No. 37220-17-0. It is also referred to as Konjac gum, Konjac Glucomannan, Glucomannan Konjac Jelly, Konnyaku and Amorphophallus Konjac Root Mannan. Preferably, KGM is for example in powder form. For example, Konjac gum

may be indicated with E425(i) or E425(ii), both contain Konjac glucomannan. It is known that a high molecular weight KGM (e.g., ≥10^6 Da, preferably e.g., from ≥10^6 Da to 10^8 Da, more preferably e.g., from ≥10^6 Da to 10^7 Da) forms a gel in water which leads to feeling of satiety after ingestion (e.g., 1 g KGM).

For example, said high molecular weight Konjac glucomannan (KGM) has a molecular weight equal to or bigger than 10^6 Da; preferably, has a molecular weight comprised from bigger than 10^6 Da to 10^8 Da; more preferably, has a molecular weight comprised from 10^7 Da to 10^8 Da.

In the present invention, it is preferred to use a high molecular weight KGM than a low molecular weight KGM.

Preferably, it is used a high molecular weight KGM with a viscosity value comprised from 20,000 cps to 100,000 cps, preferably comprised from 25,000 cps to 80,000 cps, more preferably comprised from 30,000 cps (30,000 mPas) to 60,000 cps, even more preferably comprised from 35,000 cps to 50,000 cps, for example bigger than 36,000 cps.

Advantageously, the solid fast dissolving or fast dispersing composition of the present invention can be mixed with a drinkable liquid or a drinkable fluid gel like composition, which may be selected from water, milk (e.g., cow milk), a milk substitute (plant based milk, non dairy substitute, dairy beverage), a carbonated fluid, a beverage, a drink (fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink), a nectar, a juice, a smoothie, a macchiato, a cafe au lait, a caffee latte, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a cacao without forming lumps.

Arabic gum is also a known and commercially available compound, and it is also referred to as acacia gum, and preferably it is also in powder form. Arabic gum is the dried resin of acacia senegal and related species.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above is more preferably selected from the group comprising or, alternatively, consisting of citrate salts, ascorbate salts, gluconate salts, chloride salts, lactate salts, tartrate salts, sulfate salts, glycinate/bisglycinate salts, acetyl taurinate salts, or mixtures thereof; more preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above is selected from water-soluble alkali-metal salts and/or water soluble alkali-earth metal salts such as for example citrate salts, ascorbate salt, gluconate salts, chloride salts, lactate salts, tartrate salts, or their mixtures thereof. For example, chloride salts include sodium chloride, potassium chloride, calcium chloride and ammonium chloride.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from a tripotassium citrate salt, more preferably may be a tripotassium citrate and/or tripotassium citrate monohydrate (company Pharmavit or from Magnesia/Jungbunzlauer) or trisodium citrate anhydrous (company Magnesia/Jungbunzlauer) or magnesium citrate (company Pharmavit) or zinc citrate or their mixtures thereof.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii) and (iv) above may be selected from a sodium and/or potassium ascorbate salt ((Jebsen&Jessen) and/or calcium and/or magnesium ascorbate (company Global Calcium) and/or zinc ascorbate monohydrate (company Biolla Chemicals GmbH) or their mixtures thereof.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be

selected from a sodium and/or potassium gluconate salt (company Magnesia/Jungbunzlauer) and/or calcium and/or magnesium gluconate (company Global Calcium) and/or zinc gluconate salt (company Magnesia/Jungbunzlauer) or their mixtures thereof.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from an alkali-earth metal halogenide salt; e.g., an alkali-earth chloride salt (e.g., $CaCl_2$ x $2H_2O$, company Magnesia/Jungbunzlauer) or (e.g., $MgCl_2$ x $6H_20$, company Magnesia/Jungbunzlauer) or hydrate water free versions like calcium chloride salt or a magnesium chloride or their mixtures thereof.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from an alkali chloride salt, e.g., sodium chloride, potassium chloride, ammonium chloride, or their mixtures thereof.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from lactate salts, more preferably may be a calcium lactate pentahydrate (company Global Calcium) and/or sodium lactate (company Magnesia/Jungbunzlauer) and/or potassium lactate and/or zinc lactate dihydrate, or their mixtures thereof.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from tartrate salts, more preferably may be a potassium tartrate x 0.5 H_20 (company Dr. Paul Lohmann) and/or potassium sodium tartrate x 4 H_2O, or their mixtures thereof.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from sulfate salts, more preferably may be a sodium and/or potassium sulfate.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from glycinate salts, more preferably may be a sodium and/or potassium glycinate.

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from bisglycinate salts, more preferably may be a zinc bisglycinate or zinc bisglycinate monohydrate (company Biolla Chemicals GmbH).

Preferably, said at least one water-soluble salt mentioned in the component (i), (ii), (iii), (iv) and (v) above may be selected from acetyl taurinate salts, more preferably may be a calcium and/or magnesium acetyl taurinate (company Synapharm).

Preferably, said at least one acid, more preferably at least one hydroxy acid, mentioned in the components (ii), (iii), (in the components iv. and v., here is an acid that forms the effervescent system together with a base), (viii) and (ix) above may be selected from at least one organic and/or inorganic acids, more preferably may be a hydroxy acid such as, for example, citric acid, lactic acid, ascorbic acid, tartaric acid, malic acid or other acids like phosphoric acid or glucono-delta-lactone (GdL -is a lactone that rapidly dissolves in water, and subsequently slowly hydrolyses to gluconic acid) and/or mixtures thereof; more preferably, said an acid mentioned in the component (ii), (iii), (in iv. and v., here is an acid that forms the effervescent system together with a base), (viii) and (ix) above may be a hydroxy acid, most preferably it may be a citric acid or tartartic acid.

Preferably, said an effervescent system mentioned in the components (iv) and (v) above comprises or, alternatively,

consists of at least one base that can release carbon dioxide.

According to the present invention, said an effervescent system comprises or, alternatively, consists of at least one basic substance (i.e., an organic and/or inorganic base) capable of releasing carbon dioxide in the presence of an acidic substance (i.e., an organic and/or inorganic acid) preferably in the presence of a composition or formulation containing water.

Preferably, said base may be a carbonate and/or bicarbonate salt, more preferably may be a sodium and/or potassium carbonate salt or sodium and/or potassium bicarbonate salt.

More preferably, said an effervescent system mentioned in the components (iv) and (v) above comprises or, alternatively, consists of a sodium and/or potassium bicarbonate salt (also referred to as sodium or potassium hydrogen carbonate salt, $NaHCO_3$ or $KHCO_3$) and citric acid.

Preferably, said at least one water-soluble salt mentioned in the components (iv) and (v) above may be selected from alkali-metal carbonate salts; more preferably, may be a sodium carbonate and/or sodium hydrogen carbonate salt (Solvay Chemicals International: BICAR® FOOD, A+E. Fischer-Chemie GmbH & Co. KG, Wiesbaden, Germany, Carl Dicke GmbH & Co KG, Mönchengladbach, Germany) and/or potassium hydrogen carbonate (company Dr. Paul Lohmann) or their mixtures thereof.

Preferably, (A) the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with at least one arabic gum, and at least one water-soluble salt, with the provision that said at least one water-soluble salt is not a phosphate or polyphosphate salt.

Preferably, (B) the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with an arabic gum, at least one water-soluble salt, and at least one hydroxy acid, such as preferably citric acid, lactic acid, ascorbic acid, tartaric acid, malic acid or other acids like phosphoric acid or glucono-delta-lactone (GdL).

Preferably, (C) the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with at least one water-soluble salt and, optionally, at least one acid, more preferably at leastone hydroxy acid, with the provision that said at least one water-soluble salt is not a phosphate or polyphosphate salt.

Preferably, (D') the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with an effervescent system and, optionally, at least one water-soluble salt.

Preferably, (D'') the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with an effervescent system, an arabic gum and, optionally, at least one water-soluble salt.

Preferably, (E) the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with at least one sugar alcohol; more preferably, at least one sugar alcohol erythritol.

Preferably, (F) the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with at least one sugar alcohol; more preferably, at least one sugar alcohol erythritol, and at least one component selected from i. to ix., (not vii.).

Preferably, (G) the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with at least one acid, preferably at least one hydroxy acid; more preferably selected from citric acid and/or tartaric acid.

Preferably, (H) the invention refers to a solid fast dissolving or fast dispersing combination (or composition) comprising or, alternatively, consisting of Konjac glucomannan (KGM) in combination with at least one arabic gum and at least one acid, preferably at least one hydroxy acid, selected from citric acid and/or tartaric acid.

The solid fast dissolving or fast dispersing combination of the invention may be present in a composition for oral use such as a solid pharmaceutical, nutraceutical or food composition which comprises an aforementioned combination (i) to (ix) as above defined, and (x) optionally, at least one flavour and/or colorant and/or sweetener, and/or a carrier or at least one excipient pharma or food grade.

Even if not expressly disclosed, the term "composition" herein includes pharmaceutical, nutraceutical or food compositions or compositions for medical devices under the EU Reg. 745/2017.

Preferably, flavours and/or colorants and/or sweeteners may be of synthetic or natural origin. Preferably, components (x) may be selected from fruit flavours, such as vanilla, orange, blueberry, lemon, and the like; and sweeteners such as sucralose and/or stevia and/or erythritol.

Colorants may be any colorant which makes the more appealing the composition when mixed up with water, for instance yellow colorants, such as vanilla yellow and the like.

Colorants may also be selected from active-coloured ingredients, as it will be disclosed in detail in the following.

All the components used in the solid fast dissolving or fast dispersing combination and composition of the present invention are physiologically acceptable having a food or pharmaceutical grade.

All the components of the solid fast dissolving or fast dispersing composition of the present invention are in a in powder form and/or in a granular form, to give a solid fast dissolving or fast dispersing composition of the present invention in the form of a mixture of powders and/or granules.

In the context of the present invention, the expressions "solid fast dissolving or fast dispersing composition" and "solid fast dissolving or fast dispersing combination" are intended to refer to and include any solid composition or combination of the present invention in the form of a loose and/or free-flowing mixture of powders and/or granules, i.e. it is not a in the form of a tablet, a chewable tablet, a pill, a candy, a capsule, etc.

Preferably, the composition of the invention comprises or, alternatively, consists of:

- (A) KGM, arabic gum, and at least one water-soluble salt as defined above; or
- (B) KGM, arabic gum, at least one water-soluble salt as defined above, and at least one hydroxy acid as defined above, preferably citric acid and/or tartaric acid; or
- (C) KGM, at least one water-soluble salt as defined above and, optionally, at least one hydroxy acid as defined

above; or

- (D') KGM and an effervescent system as defined above and, optionally, at least one water-soluble salt as defined above; or
- (D") KGM, arabic gum, an effervescent system as defined above and, optionally, at least one water-soluble salt as defined above; or
- (E) KGM and the sugar alcohol erythritol; or
- (F) at least one sugar alcohol erythritol and at least one composition selected from (A), (B), (C), (D`), (D``), (G) and/or (H); or
- (G) KGM and at least one hydroxy acid; or
- (H) KGM, arabic gum and at least one hydroxy acid; or
- (I) any one of the above compositions from (A) to (H) in combination with one or more flavours and/or colorants and/or sweetener and/or oils (lipids) and/or surfactants and/or actives as defined above.

More preferably, composition (A) comprises or, alternatively, consists of KGM, an arabic gum, and a tripotassium citrate salt; even more preferably, a tripotassium citrate monohydrate salt.

More preferably, composition (B) comprises or, alternatively, consists of KGM, an arabic gum, a tripotassium citrate salt; more preferably, a tripotassium citrate monohydrate salt, and citric acid.

More preferably, composition (C) comprises or, alternatively, consists of KGM, sodium and/or potassium gluconate salt and, optionally, a tripotassium citrate salt; more preferably, a tripotassium citrate monohydrate salt.

More preferably, composition (D`) comprises or, alternatively, consists of KGM, a sodium and/or potassium (bi)carbonate, and citric acid or tartraric acid (or a mixture citric acid/tartaric acid).

More preferably, composition (D") comprises or, alternatively, consists of KGM, an arabic gum, a sodium and/or potassium (bi)carbonate, and citric acid or tartraric acid (or a mixture citric acid/tartaric acid).

More preferably, composition (E) comprises or, alternatively, consists of KGM and erythritol.

More preferably, composition (F) comprises or, alternatively, consists of erythritol and at least one of the compositions selected from (A), (B), (C), (D`), (D``), (G) and/ or (H).

More preferably, composition (G) comprises or, alternatively, consists of KGM and citric acid and/or tartaric acid.

More preferably, composition (H) comprises or, alternatively, consists of KGM, arabic gum and citric acid and/or tartaric acid.

Preferably, in said composition (A) the weight ratio KGM/Arabic gum/salt is the range comprised from 1:1:0.1 to 1:15:7, more preferably in the range comprised from 1:1.5:0.5 to 1:2:2, for instance in the range from 1:1,8:0,8 to 1:1,8:1.6, wherein the salt is preferably a tripotassium citrate, more preferably a tripotassium citrate monohydrate. Tripotassium citrate salt may be replaced by the other salts as defined above, for instance gluconates and ascorbates, such as gluconates (sodium, potassium, calcium), ascorbates (sodium), potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$ (or hydrate water free versions of magnesium chloride, calcium chloride), sodium chloride, potassium chloride. Mixtures of salts may also be used.

Preferably, in said composition (B) the weight ratio KGM/arabic gum/salt/citric acid (or acid) is in the range comprised from 1/1/0.1/0.1 to 1/15/7/5, more preferably in the range comprised from 1/1/0.2/0.2 to 1/7.5/5/4, even more preferably in the range comprised from 1/1.5/0.3/0.3 to 1/2/4/3, for istance from 1/1.8/0.4/0.3 to 1/1.8/1/2, or from 1/1.8/0.4/0.4 to 1/1.8/0.8/1, for istance 1/1.8/0.4/0.4, wherein the water soluble salt is preferably tripotassium citrate, more preferably tripotassium citrate monohydrate. Tripotassium citrate salt may be replaced by the other salts as defined above, for instance gluconates and ascorbates, such as gluconates (sodium, potassium, calcium), ascorbates (sodium), potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$ (or water free versions of magnesium chloride, calcium chloride), sodium chloride, potassium chloride. Mixtures of salts may also be used.

The citric acid may be replaced by other acids such as hydroxy acid like lactic acid, ascorbic acid, tartaric acid, malic acid or phosphoric acid or glucono-delta-lactone (GdL) which rapidly dissolves, and subsequently slowly hydrolyses to gluconic acid) or mixtures of acids.

For example, compositions (A) showed a more neutral pH, while compositions (B), also comprising citric acid, showed pH< 6.5.

It was observed that the addition of at least one water-soluble salt as defined above to a powder mixture of KGM/Arabic gum (e.g., 1 g/1 g) resulted astonishingly to a faster dissolution process (suspending process) of KGM/Arabic gum in water than without the salt (e.g., a powder mixture of KGM/Arabic gum/tripotassium citrate monohydrate, preferably 1.0 g/1.0 g/1.8 g in 96.2 g of water. Further, the addition of a salt, for example 1.8 g of tripotassium citrate monohydrate, it reduces the viscosity. A composition of a powder mixture comprising KGM/Arabic gum/ at least one water-soluble salt, for example in a weight ratio of 1/3.6/0.5, gives a fluid instead of a fluid gel (e.g., KGM/Arabic gum/tripotassium citrate monohydrate). Furthermore, a higher amount of arabic gum gives a nice mouthfeel.

Since arabic gum is a fibre, it is possible to use according to the present invention, for example in a drink, 9 g for example of a powder composition of KGM/Arabic gum/ at least one water-soluble salt, preferably in a weight ratio of 1:9:1.6. Drinking this composition delivers 10 g fibre/drink or 30 g/day (3 drinks). The German organization “Deutsche Gesellschaft für Ernährung” https://www.dge.de/wissenschaft/referenzwerte/ballaststoffe/ recommends 30 g fibre/adults/day. The composition of KGM/Arabic gum/tripotassium citrate monohydrate 1:9:1.6 is fluid and delivers 10 g of fibre/or 30 g/day (3 drinks). Even higher amounts of Arabic gum in a drink are also possible.

Preferably, the addition of lipophilic and/or surface-active components as a powder and/or granule (actives, oils, lipids and/or surfactants) to the system of (A) KGM/Arabic gum/at least one water-soluble salt leads to a milk-like product (instant milk) or milk alternatives product (milk substitute products, non dairy substitutes, plant-based milks, non-dairy beverage) or cocoa-like product at a approximately neutral pH range. The lipophilic and/or surface-active component can be added a) as a powder and/or granule or b) as a liquid, more preferably as a powder and/or granule.

Examples of powders: a1) full cream milk powder, a2) coffee powder, a3) wheat germs, a4) almond flour, a5) cacao powder, a6) MCT powder, a7) omega-3 powder, a8) oatmeal/oatflour powder, or a9) soymeal/soyflour powder.

Examples of liquid oils: b1) Linseed oil + EPA +DHA (liquid omega 3, containing ALA, EPA and DHA).

Examples of other liquid oils are flaxseed oil, fish oil, borage oil, blackcurrent seed oil, evening primrose oil, olive oil, MCT oils (e.g. coconut oil).

Preferably, in said composition (C) the weight ratio KGM/water soluble salt is in the range comprised from 1/0.5 to 1/15, more preferably in the range of 1:6, even more preferably 1:3 for example with tripotassium citrate monohydrate. The pH of such a composition is around about 7.4 ± 2 (at 20.5°C). Tripotassium citrate monohydrate salt may be replaced by the other water-soluble salts as defined above, for instance gluconates and ascorbates, such as gluconates (sodium, potassium, calcium), ascorbates (sodium), potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$ (or water free versions of magnesium chloride, calcium chloride), sodium chloride, potassium chloride. Mixtures of salts may also be used.

More preferably, said composition D' comprises or, alternatively, consists of KGM and an effervescent system, as defined above, and optionally a salt as defined above.

Preferably, said composition D' comprises or, alternatively, consists of KGM/sodium hydrogen carbonate/citric acid and/or tartaric acid, and/or KGM/potassium hydrogen carbonate/citric acid and/or tartaric acid.

Preferably, in said composition D' the weight ratio of KGM/sodium and/or potassium hydrogen carbonate salt/citric and/or tartaric acid is in the range comprised from 1/0.1/0.06/ to 1/10/23, more preferably in the range comprised from 1/5/2.5 to 1/5/12, even more preferably in the range of 1.00/0.1/0.23, or more preferably 1/(0.1-0.60)/(0.1-1.8), or more preferably 1/0.6/(0.25-1.4), wherein the water-soluble salt in the composition D' is preferably tripotassium citrate, more preferably tripotassium citrate monohydrate. Preferably, the optional added salt is in the range from 0.1 g to 15 g.

Tripotassium citrate monohydrate salt may be replaced by the other water-soluble salts, as defined above, for instance gluconates and ascorbates, such as gluconates (sodium, potassium, calcium), ascorbates (sodium), potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$, (or water free versions of magnesium chloride, calcium chloride), sodium chloride, potassium chloride. Mixtures of salts may also be used.

Preferably, said composition D'' comprises or, alternatively, consists of KGM/Arabic gum/sodium hydrogen carbonate/citric acid (and/or tartaric acid) and, optionally, at least one salt selected from the group comprising or, alternatevily, consisting of tripotassium citrate, preferably tripotassium citrate monohydrate, gluconates (sodium, potassium, calcium), ascorbates (sodium and/or potassium), sodium and/or potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate, preferably trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x$2H_2O$ (or water free versions of magnesium chloride, calcium chloride), sodium chloride, potassium chloride; or said composition D'' comprises or, alternatively, consists of KGM/Arabic gum/potassium hydrogen carbonate/citric acid (and/or tartaric acid) and, optionally, a salt selected from the group copmprising or, alternatevily, consisting of tripotassium citrate, preferably tripotassium citrate monohydrate, gluconates (sodium, potassium, calcium), ascorbates (sodium and/or potassium), sodium and/or potassium tartrate x $0.5H_2O$, potassium

sodium tartrate-4-hydrate, trisodium citrate, preferably trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$ (or water free versions of magnesium chloride, calcium chloride) sodium chloride, potassium chloride; or said composition D'' comprises or, alternatively, consists of KGM/ Arabic gum, mixture of sodium and potassium hydrogen carbonate/ citric acid (and/or tartaric acid) and, optionally, a salt selected from the group copmprising or, alternatevily, consisting of tripotassium citrate, preferably tripotassium citrate monohydrate, gluconates (sodium, potassium, calcium), ascorbates (sodium and/or potassium), sodium and/or potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate, preferably trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$ (or water free versions of magnesium chloride, calcium chloride) sodium chloride, potassium chloride.

Preferably, in said composition D'' the weight ratio of KGM/Arabic gum/sodium or potassium (bi)carbonate/citric acid (and/or tartaric acid) is in the range comprised from 1/0.1/0.15/0.1 to 1/15/0.8/1.8, more preferably:

KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	15.0:	(0.15-0.8):	(0.15-1.5)
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	15.0:	0.2:	0.38
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	(0.1-0.5):mim	(0.3-0.6):	(0.19-0.70)
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	1.0:	(0.3-0.6):	(0.19 – 0.70)
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	1.2:	(0.3-0.4)	(0.23-0.92)
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	1.2:	(0.3):	(0.70)
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	1.4:	(0.15-0.6):	(0.10 – 1.0)
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	1.4:	(0.225-0,263):	(0.17– 0.60)
KGM	Arabic gum	Sodium Bicarbonate	Citric acid
1.0:	1.8:	0.23:	(0.175-0.53)

Preferably, if less arabic gum is present it makes the composition more fluid to fluid-gel like, more preferably the arabic gum may be present at 1.4 or 1.5 or 1.6 or 1.7 weight ratio based on 100 g (e.g., 1.4 means 1.4%).

Preferably, arabic gum >1.7 gives a fluid composition.

Preferably, in case of a drinkable liquid or a drinkable fluid gel like composition, with a high liphophilic content i.e., a high fat content, is preferred to use a higher amount of arabic gum which may be in the range (weight ratio) from 10 to 50, preferably from 15 to 40, more preferably from 20 to 30 by weight for 1.0 KGM.

Preferably, said composition D'' comprises or, alternatively, consists of KGM/arabic gum/sodium and/or potassium

(bi)carbonate/citric acid (and/or tartaric acid)/at least one salt; preferably, with a weight ratio of:

KGM	Arabic gum	(bi)Carbonate	Citric acid	Salt
1.0:	(0.1-15.0):	(0.15-0.8):	(0.10-1.80):	(0.1-7.0)

more preferably, with a weight ratio of:

KGM	Arabic gum	(bi)Carbonate	Citric acid	Salt
1.0:	1.0:	(0.3-0.6):	(0.7- 2.0):	(0.25-7.00)

even more preferably, with a weight ratio of

KGM	Arabic gum	(bi)Carbonate	Citric acid	Salt
1.0:	1.0:	(0.3-0.6):	(0.7- 2.0):	(0.25-3.00)

for instance,

KGM	Arabic gum	(bi)Carbonate	Citric acid	Tripotassium citrate monohydrate
1.0:	1.0:	(0.3-0.6):	(0.7- 2.0):	(0.25-3.00)

for instance,

KGM	Arabic gum	(bi)Carbonate	Citric acid	Tripotassium citrate monohydrate
1.0:	1.0:	(0.3-0.6):	(0.7- 2.0):	(0.25-3.00)

Tripotassium citrate and tripotassium citrate monohydrate salt may be replaced by the other water-soluble salts, as defined above, selected from the group copmprising or, alternatevily, consisting of tripotassium citrate, preferably tripotassium citrate monohydrate, gluconates (sodium, potassium, calcium), ascorbates (sodium and/or potassium), sodium and/or potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate, preferably trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$ (or water free versions of magnesium chloride, calcium chloride) sodium chloride, potassium chloride. Mixtures of salts may also be used. Citric acid may be replaced by other acids, preferred a hydroxy acid such as lactic acid, ascorbic acid, tartaric acid, malic acid or by other acids like phosphoric acid or glucono-delta-lactone (GdL) or mixtures of the acids mentioned above.

Preferably, the composition D'' may further comprises at least one lipophilic and/or surface-active component such as, for example, actives, oils, lipids and/or surfactants; for example, the composition D'' may comprises:

KGM/arabic gum/sodium and/or potassium (bi) carbonate/hydroxy acid, or

KGM/arabic gum/sodium and/or potassium (bi) carbonate/citric acid, preferably with a weight ratio of:

KGM	Arabic gum	Carbonate	Citric acid	(Active, Oil, lipid, Surfactant)
1.0:	(15.0-40):	(0.15-0.8):	(0.15-1.5):	(0.5-80.0)

or,

KGM	Arabic gum	Carbonate	Citric acid	MCT-C8
1.0:	(1.0-5.0):	0.45:	1.37:	(0.5-4.0)

It was observed that the above compositions showed a faster dissolution in water, less lump formation, a better flow behaviour from a beverage drinking glass to the mouth, a better mouthfeel, an improved viscosity when mixed with water, contrary to the extreme high viscosity of KGM alone in a liquid, preferably but not limited to, water.

Accorging to one of its aspects, the subject matter of the present invention relates to a solid fast dissolving or fast dispersing composition comprising or, alternatively, consisting of, a high molecular weight Konjac glucomannan (KGM) and an arabic gum in combination with at least one further dissolving or dispersing aid component which is selected from the group comprising or, alternatively, consisting of:

(A) at least one water-soluble salt, with the provision that said at least one water-soluble salt is not a phosphate or polyphosphate salt; or

(B) at least one water-soluble salt and at least one organic acid, preferably at least one hydroxy acid; or

(D'') an effervescent system comprising or, alternatively, consisting of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance and, optionally, at least one water-soluble salt; or

(H) at least one organic acid, preferably at least one hydroxy acid; and/or

their mixtures thereof.

Preferably, said high molecular weight Konjac glucomannan (KGM) has a molecular weight equal to or bigger than 10^6 Da; preferably, has a molecular weight comprised from bigger than 10^6 Da to 10^8 Da; more preferably, has a molecular weight comprised from 10^7 Da to 10^8 Da; and/or said high molecular weight Konjac glucomannan (KGM) has viscosity value preferably comprised from 20,000 cps to 100,000 cps, preferably comprised from 25,000 cps to 80,000 cps, more preferably comprised from 30,000 cps to 60,000 cps, even more preferably comprised from 35,000 cps to 50,000 cps, and preferably has glucomannan content comprised from bigger than 85% to 98%, more preferably from 90% and 95%.

Preferably, said at least one water-soluble salt is preferably selected from the group comprising or, alternatively, consisting of:

- citrate salts; preferably, sodium and/or potassium citrate salts; more preferably tripotassium citrate salts, tripotassium citrate monohydrate salts, trisodium citrate salts, trisodium citate anhydrous salts, magnesium citrate, calcium citrate, zinc citrate, or their mixtures thereof;
- ascorbate salts; preferably, sodium and/or potassium ascorbate salts, calcium and/or magnesium ascorbate salts, zinc ascorbate, zinc ascorbate monohydrate salts, or their mixtures thereof;
- gluconate salts; preferably, sodium and/or potassium gluconate salts, calcium and/or magnesium gluconate salts, zinc gluconate salt, or their mixtures thereof;
- chloride salts; preferably, sodium chloride, potassium chloride, calcium chloride, magnesium chloride, ammonium chloride, or their mixture thereof.
- lactate salts; preferably, calcium lactate, calcium lactate pentahydrate, sodium and/or potassium lactate, zinc lactate, zinc lactate dihydrate, or their mixtures thereof;
- tartrate salts; preferably, sodium and/or potassium tartrate, potassium sodium tartrate, or their mixtures thereof;
- sulfate salts; preferably, sodium and/or potassium sulfate salts;
- glycinate salts; preferably, sodium and/or potassium glycinate salts;
- bisglycinate salts; preferably, zinc bisglycinate or zinc bisglycinate monohydrate salts;

- acetyl taurinate salts; preferably, calcium and/or magnesium acetyl taurinate salts; or their mixturs thereof.

Preferably, said at least one organic acid is selected from the group comprising or, alternatevily, consisting of citric acid, lactic acid, ascorbic acid, tartaric acid, malic acid, or phosphoric acid or glucono-delta-lactone (GdL).

Preferably, said effervescent system comprises or, alternatively, consists of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance, wherein said basic substance is selected from carbonate or bicarbonate salts; more preferably, sodium and/or potassium carbonate, sodium and/or potassium bicarbonate, or their mixtures thereof; and said at least one acidic substance is selected from organic acids; preferably, hydroxy acids such as citric acid and/or tartaric acid.

More preferably, said solid fast dissolving or fast dispersing composition comprises or, altervatively, consists of (i) KGM, arabic gum, tripotassium citrate; more preferably, tripotassium citrate monohydrate, and citric acid, or (ii) KGM, arabic gum, sodium and/or potassium (bi)carbonate, and citric acid.

According to one of its aspects, the subject matter of the present invention relates to a process for preparing a drinkable compositition comprising the steps of:

a) putting into contact a solid fast dissolving or fast dispersing composition of the invention with a water-based fluid, which is selected from water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixtures thereof;

b) mixing, preferably with the aid of a spoon, for a time from 10 seconds to 5 minutes, preferably from 1 minute to 3 minutes, at a temperature from 18 °C to 40°C, preferably from 18°C to 25 °C.

According to one of its aspects, the subject matter of the present invention relates to a drinkable composition obtained by mixing the solid fast dissolving or fast dispersing combination, as described above, with water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixture thereof.

According to one its aspects, the subject matter of the present invention relates to the solid fast dissolving or fast dispersing composition, as described above, for use in a method for managing weight loss or overweight reduction in a subject in need.

According to one its aspects, the subject matter of the present invention relates to the solid fast dissolving or fast dispersing composition, as described above, for use in a method to promote body weight loss in a healthy subject, or to reduce body weight in an overweight and/or obese subjects.

According to one its aspects, the subject matter of the present invention relates to the solid fast dissolving or fast dispersing composition, as described above, for use in a method for reducing cholesterol and blood sugar levels in

a subject in need.

According to one its aspects, the subject matter of the present invention relates to the drinkable composition, as described above, for use in a method for managing weight loss or overweight reduction in a subject in need.

According to one its aspects, the subject matter of the present invention relates to the drinkable composition, as described above, for use in a method to promote body weight loss in a healthy subject, or to reduce body weight in an overweight and/or obese subjects.

According to one its aspects, the subject matter of the present invention relates to the drinkable composition, as described above, for use in a method for reducing cholesterol and blood sugar levels in a subject in need.

According to one its aspects, the subject matter of the present invention relates to a solid fast dissolving or fast dispersing composition comprising or, alternatively, consisting of, a high molecular weight Konjac glucomannan (KGM) in combination with at least one further dissolving or dispersing aid component which is selected from the group comprising or, alternatively, consisting of:

(C) at least one water-soluble salt and, optionally, at least one acid; preferably, at least one hydroxy acid, with the provision that said at least one water-soluble salt is not a phosphate or polyphosphate salt; and/or

(D') at least one effervescent system comprising or, alternatively, consisting of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance and, optionally, at least one water-soluble salt; and/or

(E) at least one sugar alcohol, preferably at least one sugar alcohol erythritol; and/or

(F) at least one sugar alcohol, preferably at least one sugar alcohol erythritol, and at least one component selected from (C) and (D'); and/or

(G) at least one acid, preferably at least one hydroxy acid; and/or

their mixtures thereof.

Preferably, said high molecular weight Konjac glucomannan (KGM) has a molecular weight equal to or bigger than 10^6 Da; preferably, has a molecular weight comprised from bigger than 10^6 Da to 10^8 Da; more preferably, has a molecular weight comprised from 10^7 Da to 10^8 Da; and/or said high molecular weight Konjac glucomannan (KGM) has viscosity value preferably comprised from 20,000 cps to 100,000 cps, preferably comprised from 25,000 cps to 80,000 cps, more preferably comprised from 30,000 cps to 60,000 cps, even more preferably comprised from 35,000 cps to 50,000 cps, and preferably has glucomannan content comprised from bigger than 85% to 98%, more preferably from 90% and 95%.

Preferably, said at least one water-soluble salt is preferably selected from the group comprising or, alternatively, consisting of:

- citrate salts; preferably, sodium and/or potassium citrate salts; more preferably tripotassium citrate salts, tripotassium citrate monohydrate salts, trisodium citrate salts, trisodium citate anhydrous salts, magnesium citrate, calcium citrate, zinc citrate, or their mixtures thereof;
- ascorbate salts; preferably, sodium and/or potassium ascorbate salts, calcium and/or magnesium ascorbate salts, zinc ascorbate, zinc ascorbate monohydrate salts, or their mixtures thereof;

- gluconate salts; preferably, sodium and/or potassium gluconate salts, calcium and/or magnesium gluconate salts, zinc gluconate salt, or their mixtures thereof;
- chloride salts; preferably, sodium chloride, potassium chloride, calcium chloride, magnesium chloride, ammonium chloride, or their mixture thereof.
- lactate salts; preferably, calcium lactate, calcium lactate pentahydrate, sodium and/or potassium lactate, zinc lactate, zinc lactate dihydrate, or their mixtures thereof;
- tartrate salts; preferably, sodium and/or potassium tartrate, potassium sodium tartrate, or their mixtures thereof;
- sulfate salts; preferably, sodium and/or potassium sulfate salts;
- glycinate salts; preferably, sodium and/or potassium glycinate salts;
- bisglycinate salts; preferably, zinc bisglycinate or zinc bisglycinate monohydrate salts;
- acetyl taurinate salts; preferably, calcium and/or magnesium acetyl taurinate salts; or their mixturs thereof.

Preferably, said at least one organic acid is selected from the group comprising or, alternatevily, consisting of citric acid, lactic acid, ascorbic acid, tartaric acid, malic acid, or phosphoric acid or glucono-delta-lactone (GdL).

Preferably, said effervescent system comprises or, alternatively, consists of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance, wherein said basic substance is selected from carbonate or bicarbonate salts; more preferably, sodium and/or potassium carbonate, sodium and/or potassium bicarbonate, or their mixtures thereof; and said at least one acidic substance is selected from organic acids; more preferably, hydroxy acids such as citric acid and/or tartaric acid.

According to one of its aspects, the subject matter of the present invention relates to a process for preparing a drinkable compositition comprising the steps of:

a) putting into contact a solid fast dissolving or fast dispersing composition of the invention with a water-based fluid, which is selected from water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixtures thereof;

b) mixing, preferably with the aid of a spoon, for a time from 10 seconds to 5 minutes, preferably from 1 minute to 3 minutes, at a temperature from 18 °C to 40°C, preferably from 18°C to 25 °C.

According to one of its aspects, the subject matter of the present invention relates to a drinkable composition obtained by mixing the solid fast dissolving or fast dispersing combination, as described above, with water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao or mixtures thereof.

According to one its aspects, the subject matter of the present invention relates to the solid fast dissolving or fast

dispersing composition, as described above, for use in a method for managing weight loss or overweight reduction in a subject in need.

According to one its aspects, the subject matter of the present invention relates to the solid fast dissolving or fast dispersing composition, as described above, for use in a method to promote body weight loss in a healthy subject, or to reduce body weight in an overweight and/or obese subjects.

According to one its aspects, the subject matter of the present invention relates to the solid fast dissolving or fast dispersing composition, as described above, for use in a method for reducing cholesterol and blood sugar levels in a subject in need.

According to one its aspects, the subject matter of the present invention relates to the drinkable composition, as described above, for use in a method for managing weight loss or overweight reduction in a subject in need.

According to one its aspects, the subject matter of the present invention relates to the drinkable composition, as described above, for use in a method to promote body weight loss in a healthy subject, or to reduce body weight in an overweight and/or obese subjects.

According to one its aspects, the subject matter of the present invention relates to the drinkable composition, as described above, for use in a method for reducing cholesterol and blood sugar levels in a subject in need.

Experimental part

1. KGM, arabic gum, and at least one water-soluble salt as defined above.

a) Fullcream milk powder is added to a system of KGM/Arabic gum/water soluble salt.

A powder mixture of KGM/Arabic gum/Tripotassium citrate monohydrate/Full cream milk powder with a fat content of 3.5%-4.2% (1.0 g/1.8 g/0.8 g/2.0 g) was poured in water (100 g water – 5.6 g of raw materials) and stirred with a spoon. A fluid composition results (pH 7.8 (20.3°C) with a white appearance and neutral taste impression.

b) Coffee powder is added to KGM/Arabic gum/water soluble salt and poured into milk.

A powder mixture of KGM/Arabic gum/Tripotassium citrate monohydrate/coffee powder (Robusta, mild, 23-10231, coffein content: 3.5-5.5% from Deutsche Extrakt Kaffee GmbH, Hamburg, Germany)/sucralose (1g/2.6g/0.8g/1.5g/0.015g) is added to 94.085g of a low fat homogenized milk (fat content: 1,5%, available in German supermarket EDEKA, https://www.supermarktcheck.de/edeka/sortiment/h-milch-1-5/). A fluid brown composition results (taste similar to a milk coffee from a fridge in a german supermarket (EDEKA), taste like e.g., “Starbucks” caffee latte, “Emmi” caffee latte, “Gut und günstig” latte espresso, “Müller” latte macchiato, “Müller” espresso macchiato).

c) Oat powder is added to KGM/Arabic gum/water soluble salt

A powder mixture of KGM/Gum arabic/Tripotassium citrate monohydrate/oat meal powder/vanilla flavor/Sucralose (1.0g/2.7g/1.6g/2.5g/0.4g/0.015g) is added to water (91.585g) and stirred with a spoon.

A fluid composition results with a white appearance and neutral oatmeal taste impression.

d) Full cream milk powder and a freeze-dried fruit are added to KGM/Arabic gum/water soluble salt

A powder mixture of KGM, Gum Arabic, Tripotassium citrate/Full cream milk powder (1.0g/1.8g/0.8g/3.0g) was mixed and whole freeze-dried raspberries (2g) were added to the powder mixture. This raspberry containing powder

mixture (1.0g/1.8g/0.8g/3.0g/2.0g) was added to water in a beverage glass and stirred with a spoon.

The fluid mixture was allowed to stand for 10 min for the rehydration of the raspberries.

A red raspberry containing fluid milk drink (with KGM) was obtained (pH: 6.8, 25°C).

2. KGM, arabic gum, at least one water-soluble salt, as defined above, and at least one hydroxy acid, as defined above.

A powder mixture of KGM/Arabic gum/citric acid/ tripotassium citrate monohydrate (1.0:1.5:0.4:0.4) makes easier the dissolving process of the KGM and arabic gum in water by simply stirring the composition with a spoon in water. Immediately, a fluid is obtained (pH 3.95 (20.7°C)). No lump formation (compared to KGM pure in water). The consumer can drink it immediately. More neutral compositions (neutral aftertaste, e.g., pH 5.7 (21.1°C) can be obtained by changing the relative ratios citrate/hydroxy acid ((1.0:1.5:0.7:0.1).

In the KGM/Arabic gum system with at least one water-soluble salt, the salt is preferably selected from the group copmprising or, alternatevily, consisting of tripotassium citrate, preferably tripotassium citrate monohydrate, gluconates (sodium, potassium, calcium), ascorbates (sodium and/or potassium), sodium and/or potassium tartrate x $0.5H_2O$, potassium sodium tartrate-4-hydrate, trisodium citrate, preferably trisodium citrate anhydrous, magnesium chloride x $6H_2O$, calcium chloride x $2H_2O$ (or water free versions of magnesium chloride, calcium chloride) sodium chloride, potassium chloride.

3. KGM/Arabic gum/Tripotassium citrate monohydrate/citric acid/Full cream milk powder.

A powder mixture of KGM/Arabic gum/Tripotassium citrate monohydrate/citric acid/Full cream milk powder (1.00 g/1.50 g/1.5g/0.1 g/3.00 g) was added to 92.9 g of water and stirred with a spoon. A fluid composition results (pH 6.24, 19.6°C) with a white appearance. Increasing the citric acid content leads to more acidic formulations.

Adding cacoa powder (Plaine Arome (Fat content: 22-24%)) and full cream milk powder (3.0g/1.2g) to the system of KGM/Arabic gum/water soluble salt /hydroxy acid (e.g., citric acid). Cacao powder is available from e.g., Barry Callebout Deutschland GmbH, im Mediapark 8a, 50670 Köln (with different fat contents, e.g., “Noir Intense”:10-12%, “Plaine Arome” or “Extra brute”: 22-24%, “Rouge Ultime”20-22%, “Legere”: 1%.

A powder mixture of KGM/Arabic gum/Tripotassium citrate monohydrate/citric acid/Full cream powder/Cacao powder (Plaine Arome (Fat content: 22-24%)) (1.0 g/1.5g/1.5g/0.1g/3.0g/1.2g) was added to 91.7 g of water and stirred with a spoon. A fluid composition results (pH 6.6, 20.5°C) with a brown appearance. Due to the combination of full cream milk/cacao powder the product has a good cacao taste.

4. KGM, a water-soluble salt and, optionally, a hydroxy acid as defined above.

Astonishingly powder mixtures of KGM/water soluble salt (e.g., 1:6 or 1:3 or 1:1) facilitates the dissolving process of the high molecular weight KGM in water. Immediately a fluid is obtained by simply stirring the composition with a spoon. No lump formation (compared to KGM pure in water). Small KGM particles are visible in water directly after the mixture was prepared. The formation of these small particles in comparison to the pure KGM/water system is an advantage because these particles are in fluid state (salt/water) instead of a thick gel that is formed in case of the KGM/water combination. After a while from these fluid particles starts the conversion to a fluid gel. The consumer can drink the fluid immediately. If he prefers to wait a while (e.g., 10-15 min) a drinkable fluid gel results

that he can drink. Sodium and potassium gluconate or tripotassium citrate monohydrate, trisodium citrate anhydrous, sodium ascorbate, potassium tartrate x 0,5 H20, potassium sodium tartrate-4-hydrate or magnesium chloride x 6 H2O or the corresponding calcium chloride and sodium chloride or potassium chloride are examples that work very well. Furthermore, combinations with water soluble salts are also possible. It is evident, that these salts or salt combinations have "very fast dissolver" or "very fast suspending" properties for KGM.

It is possible to formulate at a more neutral pH or in an acid range, e.g., a mixture KGM/sodium gluconate/water (1g/3g/96g) has a pH of 7.43 (20.5°C) and a more neutral taste. Adding citric acid (e.g., 0.25 g) gives a pH of 4.44 (20.1°C) in a formulation of KGM/sodium gluconate/water/citric acid (1g/3g/0.25g/95.50g/0.25g) and a little bit more acid taste perception.

A composition of KGM/Tripotassium citrate monohydrate/citric acid can be formulated at more neutral pH (citric acid: 0 g, pH: 7.4, 20.5°C) or by addition of citric acid the desired pH can be found (g water: 100g - g raw materials/ingredients).

For example:

KGM/Tripotassium citrate monohydrate/citric acid (1g/3g/1g): pH = 4.9 (20.3°C);

KGM/Tripotassium citrate monohydrate/citric acid (1g/2g/2g): pH = 3.9 (20.2°C);

KGM/Tripotassium citrate monohydrate/citric acid (1g/1g/3g): pH = 3.0 (19.8°C);

KGM/Tripotassium citrate monohydrate/citric acid (1g/0.5g/3.5g): pH = 2.5 (19.9°C).

In case of a system KGM/sodium ascorbate/water (1g/3g/96g) the formulation has an added benefit due to the sodium ascorbate. Sodium ascorbate serves as an antioxidant, helping to protect the cells from damage. Furthermore, a study in 2005 describes that individuals with adequate vitamin C status oxidize 30% more fat during a moderate exercise (J Am Coll Nutr 2005 Jun; 24(3):158-65).

A very cheap compositon with sodium chloride or potassium chloride can be obtained.

A powder mixture of KGM/sodium chloride (1g/0.5g) up to KGM/sodium chloride (1g/2g) leads to a fast-dissolving process of the KGM (water: 100 g – g of raw materials).

Higher amounts of sodium chloride (e.g., 3%) leads to salty compositions (that might be not acceptable for some consumers). It is therefore preferred to formulate below 2% of sodium chloride. A powder mixture of KGM/sodium chloride/citric acid (1g/1g/1g) leads to a fast-dissolving process of KGM with an acid aftertaste whereas mixtures of KGM/sodium chloride/citric acid (1g/1g/0.06g up to 1.00g) leads to a more neutral tasting (0.06g) or slightly acid tasting compositions that do not have a salty aftertaste. A composition of KGM/sodium chloride/citric acid/water (1g/1g/1g/97 g water) has a pH of 2.4 (25°C) in comparison to pH = 3.75 (25°C) for a KGM/sodium chloride/citric acid/water (1g/1g/0.06g/97.4g) composition.

Furthermore, it was observed that KGM/water soluble salt/water formulations are translucent to transparent, for example the high molecular weight KGM/sodium gluconate/water system is translucent to transparent. High molecular weight KGM/water systems are more greyish and translucent/not transparent (see introduction). Consumers that prefer a translucent to transparent KGM fluid or a more translucent/transparent KGM fluid gel will like such compositions. Adding a water soluble natural or synthetic color to such formulations results in the

corresponding colored translucent to transparent fluids or colored translucent to transparent fluid gels. Adding a water-soluble flavour and/or a sweetener like sucralose, stevia is additionly possible.

5. (D') KGM and an effervescent system, as defined above, and optionally at least one water-soluble salt as defined above.

Compositions (D) e.g., D' and D'' become effervescent when mixed with water, through the CO_2 development due to the following reaction: $MeHCO_3$ + $(HOOCCH_2)_2C(OH)COOH$ -> CO_2 + Me-citrate; Me being Na or K. Effervescent system: Me Hydrogen carbonate + acid (e.g., citric acid).

6. KGM/Me hydrogen carbonate/citric acid (powder mixture) such as for example:

a) KGM/sodium hydrogen carbonate/citric acid.

Surprisingly in a powder mixture of KGM/sodium hydrogen carbonate/citric acid (1.0:0.6g:0.4g) a very fast dissolution of the KGM in water was observed by simply stirring the composition with a spoon, no lump formation. The formulation is immediately liquid (water: 100g-g raw materials). A representative example is also KGM/sodium hydrogen carbonate/citric acid (1g/0.3 g/ 0.7 g). A very fast dissolution of the KGM was observed simply stirring the composition with a spoon. Due to the dissolved CO2 a creamy taste is obtained in the form of a smooth (drinkable) gel. A higher content of the effervescent system (e.g., $NaHCO_3$/citric acid) for 1 g of KGM is possible (e.g., 0.6g/1.4g etc.).

b) KGM/potassium hydrogen carbonate/citric acid.

It is possible to achieve different pH values (for 1 g KGM), e.g., it was observed that more citric acid (e.g., 5.75 g) gives with potassium hydrogen carbonate (3.00 g) a pH of 3.7 and the usage of less citric acid (1.92 g) gives with potassium carbonate (3.00 g) a pH of 6.1. Water content = 100 g – g of the powder raw material mixture.

The freedom to operate at different neutralisation levels and the usage of the corresponding sodium or potassium hydrogen carbonate salt is relevant for at least six reasons. 1) Some consumers prefer an acid taste of a product (or the combination acid combined with sweetness from a sweetener). The formulator will formulate the KGM product at a lower pH value in this case. 2) The stability of added actives is in some cases better in an acid (more neutral) than in a more neutral (acid) pH. The formulator will formulate at the corresponding preferred pH value (acid or more neutral pH value). 3) The color impression of an active is different at acid pH values versus a more neutral pH (e.g., for actives like antocyanins). If the color is brighter in an acid environment that the formulator will formulate at a lower pH value the KGM product. 4) The consumer (obese adult, obese child) is interested in a KGM product with (a lot of) foam and an acid aftertaste after dissolving the KGM powder mixture. In case of a high amount of the hydrogen carbonate salt (e.g 0.4 g to 3.0 g potassium hydrogen carbonate) a foam development is observed in the presence of 1.00 g KGM; 0.77g citric acid (for 0.40 g potassium hydrogen carbonate) or in the presence of 5.80 g citric acid (for 3.00 g potassium hydrogen carbonate). The pH of such formulations in the range of pH 3.7-4.0. If costs of the final formulations have to be considered the lower boundaries of the hydrogen carbonate salt will be used. 5) The consumer (obese adult, obese child) is interested in a KGM product with (a lot of) foam and a more neutral aftertaste after dissolving the KGM powder mixture. In case of a high amount of the hydrogen carbonate salt (e.g. 0.4g to 3.0 g potassium hydrogen carbonate) a foam development and neutral

aftertaste (pH 6.1) is observed. For example, in a sample with 1.00 g KGM, 1.92 g citric acid, 3.00 g potassium hydrogen carbonate. 6) The consumer (obese adult, obese child) consumes too much sodium or not enough potassium and/or has a high blood pressure problem. In this case it is preferred to formulate with the potassium hydrogen carbonate salt instead of the sodium hydrogen carbonate salt or a mixture of potassium and sodium hydrogen carbonate can be used.

It is evident from the above that an effervescent system (e.g. sodium (potassium) hydrogen carbonate, a hydroxy acid (in this case: citric acid) and the formation of the resulting sodium citrate (or the resulting potassium citrate) are a “very fast dissolver” or a “very fast suspending” combination for a KGM composition.

7. (D”) KGM, an effervescent system as defined above, and arabic gum, and optionally a water-soluble salt as defined above.

A powder mixture of KGM/Arabic gum/sodium hydrogen carbonate/citric acid.

Surprisingly in this case the dissolved CO2, arabic gum and the resulting formation of the salt (sodium citrate) lead to a fast dissolution process by simply stirring the composition with a spoon and the composition stays fluid or gives a fluid gel. In case of potassium hydrogen carbonate the resulting salt is potassium citrate instead of sodium citrate.

a) Weight ratios of 1.0/1.2/0.3/0.7 gives a foam that disappears after a while and dissolves quickly the powder ingredients. Immediately a fluid is obtained (pH 3.92, 19.9°C) by simply stirring the composition with a spoon. The consumer can drink it immediately. If he prefers to wait a while (e.g., 10-15 min) a drinkable fluid gel results that he can drink. The company selling the drink should disclose “drink immediately after mixing to get a fluid” or alternatively “drink the fluid gel after 10 to 15 min after mixing”. The composition has an acid aftertaste.

b) Weight ratios of 1.0/1.2/0.3/0.23 gives less foam that disappears after a while and dissolves quickly the powder ingredients. Immediately a fluid is obtained by simply stirring the composition with a spoon. (pH 5.9, (19.6°C)). The consumer can drink it immediately. If he prefers to wait a while (e.g., 10-15 min) a drinkable fluid gel results that he can drink. The company selling the drink should disclose “drink immediately after mixing to get a fluid” or alternatively “drink the fluid gel after 10 to 15 min after mixing”. The composition has a more neutral aftertaste.

c) Weight ratios of 1.0/1.4/0.26/0.6 or 1.0/1.8/0.5/1.0 gives a foam that disappears after a while and dissolves quickly the powder ingredients by simply stirring the composition with a spoon. Immediately a fluid is obtained. (pH: 3.92 (20.7°C). The composition has an acid aftertaste. Higher concentrations of Arabic gum relative to KGM gives fluid systems (e.g., KGM/Gum Arabic: 1:1.5 or 1:1.6 or 1:1.7 etc.).

It is evident from the above that an effervescent system (e.g., sodium (potassium) hydrogen carbonate, a hydroxy acid (in this case: citric acid) and the resulting sodium citrate (or the resulting potassium citrate) are a “very fast dissolver” or a “very fast suspending” combination for a KGM/Arabic gum composition and reduces the viscosity of KGM (>1.4).

The addition of lipophilic and/or surface-active components as a powder (actives, oils, lipids and/or surfactants) to the effervescent system of KGM/Arabic gum/sodium or potassium (bi) carbonate/hydroxy acid (e.g., citric acid) and, optionally, a water-soluble salt (D``) leads to a milk-like product or foamed milk-like product (instant milk, or foamed instant milk) or milk alternatives product (milk substitute products, non dairy substitutes, plant based milks, non-

dairy beverage) or cocoa-like product. The lipophilic (and/or surface active) component can be added as a) a powder or b) a liquid.

Examples of powders are: a1) full cream milk powder, a2) coffee powder (expresso etc.), a3) wheat germs, a4) almond flour, a5) cacao powder, a6) MCT powder, a7) omega-3 powder, a8) oatmeal/oatflour powder, a9) soymeal/soyflour powder.

Examples of liquid oils are: b1) Linseed oil + EPA + DHA (liquid omega 3, containing ALA, EPA and DHA); examples of other liquid oils are flaxseed oil, fish oil, borage oil, blackcurrent seed oil, evening primrose oil, olive oil, MCT oils (e.g., coconut oil).

8. KGM/Arabic gum/hydrogen carbonate/citric acid/Full cream milk powder.

An instant full cream milk powder (lactose free) is available from Saputo, Australia (Instant Full cream Lactose Free powder 25 kg). It contains a mixture of fat (minimum 28%), proteins (at least 35%, calcium (1g/100g). A powder mixture of KGM/Arabic gum/hydrogen carbonate/citric acid/full cream milk powder (1.00g/1.80g/0.3g/0.23g/3.60g was added to 93.07 g of water and stirred with a spoon. A fluid composition results (pH: 6.2 (19.7°C) with a white appearance. Due to the full cream milk powder the product has a rich mouthfeeling. In this case the effervescent system was adjusted to a total content of 0.53g/100g so that a consumer may notice a small amount of foam. Using higher amounts of the effervescent system gives a foaming milk like composition. Interestingly no external foam equipment or a small handheld electric mixer producing this foamed milk is necessary (the foam comes from the development of CO2).

Alternatively, a composition comprising KGM/Arabic gum/sodium or potassium (bi) carbonate/hydroxy acid (e.g., citric acid) can be added to a full cream milk powder. In case of NaHCO3 (part of the effervescent system) sodium is already available for the consumer as sodium citrate. In case of KHCO3 potassium can be delivered as potassium citrate. A combination of NaHCO3/KHCO3 delivers both minerals for a consumer. Typcial vitamins are B-vitamins like vitamin B2 (riboflavin) vitamin B12 (riboflavin), the B-vitamin complex (all B-Vitamins), vitamin A, vitamin D, vitamin E, vitamin K or vitamin C. Proteins like whey (concentrates, isolates, hydrolysate) or from other protein sources (already mentioned in the patent) can be added. By adjusting the amount of the effervescent system, the composition can be a foamed milk (total effervescent content (0.88 g/100 g or 0.53/100 g) or a milk were the foam is not visible for a consumer. Other ingredients like skim milk, whole milk, anhydrous milk fat can be used and are also available from Saputo Dairy Australia Pty Ltd.

9. KGM/Arabic gum/hydrogen carbonate/citric acid/coffee powder.

A ready to drink liquid coffee formulation with a powder composition of instant full cream milk powder, coffee powder (espresso) and an effervescent system that release CO2 for the development of a foam, KGM and arabic gum can be prepared. Additional ingredients are usually sugars, a coffee flavour, caramel, salts, colorants. It was observed that a formulation of KGM/Arabic gum/full cream milk powder, sodium hydrogen carbonate, citric acid, Jacobs Espresso powder (Jacobs Douwe Egbert) /a coffee flavour/sucralose (1 g/1.8 g/1.8 g/0.6 g/0.37 g/0.6 g/0.3 g/0.015 g) that was added to 93.38 g of water and stirred with a spoon at room temperature 20°C leads to a foaming composition with a typical coffee aroma.

The foam comes from the effervescent sytem (CO_2 development) instead from a device that.
gives the foam (air).
Changing the amount of the effervescent system and/or changing the milk fat content, and/or
the amount of amount/type of coffein, (100% Robusta, 100% Arabica and/or mixture of Robusta and Arabica or espresso versions) and/or the type of coffee powder (agglomerated, spraydried, freeze-dried), taste (mild, strong, expresso-typical) and/or certification of the coffee powder (Rainforst alliance, bio-certified) and/or type of coffee flavour and/or the choice of sweetener is possible to those skilled in the art.

10. KGM/sugar alcohol

The addition of sugar (alcohols) was evaluated. Powder mixtures of KGM/sugar (alcohols) were formulated: KGM/Sugar (alcohol) (1g/0.25g-20g). These powder components were mixed and the resulting powder compositions were added to water (100g – raw materials) and stirred with a spoon.
The following sugar (alcohols) were analyzed: dextrose monohydrate, mannitol, xylitol, allulose, maltitol, lactose monohydrate, erythritol.
In the presence of dextrose monohydrate, mannitol, xylitol, maltitol, lactose monohydrate lump formation was observed in water and the dissolution process of KGM in water was slow.
Instead, erythritol yields the desired effect:
A powder mixture of 1g KGM and 1 g erythritol was added to 98 g water and stirred with a spoon. This results in a homogenous composition without lumps (also 0.5 g works well or higher amounts of erythritol).
The dissolution process of the KGM/erythritol powder mixture in water was very fast. This is an advantage because the potential consumer has to now an easy task to prepare this simple mixture very fast. The consumer can drink it immediately.
If he prefers to wait a while (e.g. 10-15 min) a drinkable fluid gel results that he can drink. The company selling the drink should disclose “drink immediately after mixing to get a fluid” or alternatively “drink the fluid gel 10 to 15 min after mixing.

11. KGM/Citric Acid

Interestingly it was observed that citric acid suspends or dissolves the high molecular weight KGM very fast at room temperature without formation of lumps.
Usually one would expect that the KGM has to be heated in the presence of citric acid to better dissolve the KGM.
Small KGM particles are visible in water directly after the mixture was prepared. The formation of these small particles in comparison to the pure KGM/water system is an advantage because these particles are in a fluid system (citric acid/water) instead of a thick gel that is formed in case of the KGM/water combination. After a while from these fluid particles starts the conversion to a fluid gel.
a) A KGM/citric acid (1.0g/0.4 g) powder mixture dissolves in water (98.6 g) very fast without lump formation (pH 2.8, 20°C).
The consumer can drink it immediately. If he prefers to wait a while (e.g. 10-15 min) a drinkable fluid gel results that he can drink. The company selling the drink should disclose “drink immediately after mixing to get a fluid” or

alternatively “drink the fluid gel 10 to 15 min after mixing”.

Instead of anhydrous citric acid it is also possible to use citric acid monohydrate.

b) KGM/citric acid/Orange juice

The Orange juice is available in a Germany supermarket (Aldi): Declaration: Orange juice from fruit juice concentrate, enriched with Vitamin C. Brand name: rio d`oro.

A powder mixture KGM/citric acid (1g/1g) was added to the orange juice (98 g).

A fluid composition with orange juice taste results (pH: 3.2; 20.4°C). The company selling the drink should disclose “drink immediately after mixing to get a fluid” or alternatively “drink the fluid gel 10 to 15 min after mixing”.

Comparison example: KGM/Orange juice

1g of KGM was given to 99 g of the mentioned orange juice and stirred with a spoon.

A lump formation was observed in the orange juice.

c) KGM/Tartaric acid

Interestingly it was observed that tartaric acid dissolves the high molecular weight KGM very fast. Small KGM particles are visible in water directly after the mixture was prepared. The formation of these small particles in comparison to the pure KGM/water system is an advantage because these particles are in a fluid system (tartartic acid/water) instead of a thick gel that is formed in case of the KGM/water combination. After a while from these fluid particles starts the conversion to a fluid gel.

A KGM/tartaric acid (1.0g/0.5 g) powder mixture dissolves in water (98.5g) very fast without lump formation (pH 2.5; 20.3°C). The consumer can drink it immediately. If he prefers to wait a while (e.g. 10-15 min) a drinkable fluid gel results that he can drink. The company selling the drink should disclose “drink immediately after mixing to get a fluid” or alternatively “drink the fluid gel 10 to 15 min after mixing”.

Proteins

They are usually difficult to combine actives (e.g., proteins like whey proteins or other proteins like milk, egg, casein, pea, animal, fish, poultry, soy, almond, chia, hemp, rice, collagen, vegan collagen, α-lactalbumin) in high concentrations together with thickening ingredients like a high molecular weight KGM. Drinking a combination of KGM/Arabic gum/effervescent system does not provide a lot of energy for consumers because it is the intent to lose weight.

If it is the attention of the consumer not to have a breakfast or meal after drinking the KGM composition of the invention, he/she might be interested to get a little bit of energy from the KGM drink.

It was found that low to high amounts of proteins powders (concentrates, isolates, hydrolysates) like whey proteins can be added to a powder mixture of KGM/Arabic gum/effervescent system. The complete composition of KGM/Arabic gum/effervescent system/ protein can be dissolved quickly by stirring it with a spoon. Furthermore, a lack of proteins and amino acids in overweight persons is discussed in the literature which can lead to the effect that these consumers eat more fats and carbohydrates. Specific amino acids in the plasma affect the secretion of gastric hormones such as glucagon-like peptide-1 which influence satiety and appetite control.

Typical protein requirements according to Deutsche Gesellschaft für Ernährung E.V. may be found in

https://www.dge.de/wissenschaft/faqs/protein/.

Calculation of protein intake per day in case of overweight:

Body height: 1.70 m, weight: 80 kg, BMI: 28 kg/m2;

Body weight at a BMI of 22 kg/m2= 22 kg/m2 * 80 kg / 28 kg/m2 = 63 kg.

The person would have a BMI of 22 kg/m2 at a body weight of 63 kg, i.e., normal weight.

The recommended intake of protein is therefore calculated: 0.8 g/kg body weight/day * 63 kg= 50 g protein/day. Thus, 50 g of proteins can be supplemented with three drinks/day (16.6 g/drink).

Powder mixture comprising of KGM/Arabic gum/effervescent system/whey protein concentrate.

Interestingly and surprisingly, it was easy to add 17 g of whey protein concentrate in powder form (protein from company Vivi solutions (VIVI Solutions GmbH, Im Holde 25 D-48499 Salzbergen: Whey protein concentrate 80 Instant.): Whey protein concentrate 80 Instant) to a powder mixture of KGM/Arabic gum/sodium hydrogen carbonate/citric acid (1 g/1.8 g/0.5 g/1.0 g). (Water: 100g – g of the powder raw materials) and to dissolve this powder composition in water by simply stirring the composition with a spoon. The effervescent system helps to dissolve the high amount of the whey protein concentrate. The final composition has a very creamy taste.

General remarks

The compositions of the invention can be easily used by the consumers at home. Indeed, a consumer may just use a spoon as “stirrer”, which is sufficient to make the KGM more fluid thanks to the further components of the composition. An alternative to a spoon is a small handheld electric mixer. If a consumer has a problem to dissolve the KGM composition the company selling the KGM composition should give the advice to use a milk foamer, manual model or handheld stick frothers (e.g., Milchaufschäumer FINO, rotation speed 12.000 U/Min, Artikel-Nr.: 12720, GEFU GmbH, Braukweg 28, 59889 Eslohe, Germany). In this case the device is used to stir the composition (instead of foaming, in this case there is no foam development). On the other hand, in industrial processes, a typical industrial stirrer can be used.

Besides the above disclosed components, the composition of the invention may also comprise additional active ingredients or compositions, for instance, substances effective in promoting weight loss. All the components of the compositions of the invention are commercially available.

The water phase may be represented by tap water, sparkling water or still water. The water phase may contain (e.g. for industrial processes) water soluble ingredients like polyols, sugars, acids (hydroxy acids, citric acid, lactic acid, tartartic acid, solutions (e.g. gluconic acid, 50%, lactic acid solutions) water soluble flavors, water soluble vitamins (e.g. B-Vitamins, Vitamin C and derivatives), water soluble salts, water soluble dextrins, water soluble proteins, protein concentrates, protein isolates, protein hydrolysates from whey, milk, egg, casein, pea, animal, fish, poultry, soy, almond, chia, hemp, rice, lentins, lupins, collagen, vegan collagen, water soluble amino acids, water soluble surfactants, water soluble colors, water soluble sweetener, (e.g. stevia, sucralose, erythritol), polymers like xanthan gum, sodium carboxymethylcellulose, pectins, high methoxyl pectin, carrageenans, cellulose gum, gellan gum, guar gum, locust bean gum, propylene glycol alginate, gum tragacanth, microcrystalline cellulose, distarch phosphate, acetylated starch, acetylated distarch adipate, hydroxypropyl distarch phosphate, hydroxypropyl

starches, starch sodium octenyl succinate, fructooligosaccharide, galacto-oligosaccharides, water soluble powders (like cacao powder, milk powder etc.), carbonate salts, hydrogen carbonate salts, water soluble minerals, lactones like glucono deltalacton, dextrose monohydrate, mannitol, xylit, allulose, maltitol, lactose monohydrate, glycerol, glucose syrup, water soluble starch and starch hydrolysates, sucrose, trehalose, lactitol, isomaltulose and water soluble actives.

Generally, 5-20 parts per weight of the composition of the invention is mixed with 80-95 parts per weight of liquid.

Preferably, an arabic gum (Acacia Senegal) available in the market is for example a raw material that is water soluble, pH 4-5, loss of drying <10%, Ash < 4%, viscosity (25% in water) of 60-180 mPas (Benecke GmbH, Hamburg, Germany, Norevo GmbH, Germany, Nexira, France). For example, a highly emulsifying Type 4810, or Type 4810, or Type 4810, or Type 4810 (Benecke GmbH) can be used in accordance with the present invention. Other sources of Arabic gum are from the company Nexira (Tradenames: Efistab AA, SuperStab, Eficacia, InstaGum AX, Instagum AA, Instagum AP).

For example, a KGM as a raw material with starch content <1- 3%, preferred <3%, protein content <1.5-3.0%, preferred <3,0%, pH 5-7, Ash <5%, glucomannan content >85-90%, preferred >90%, more preferred from 90% to 98%, for example 92%-95%, viscosity from 26,000 to 36,000 mPas, preferred > 36,000 mPas, more preferred from 36,000 to 80,000 mPas, particle size from 90 to 200 mesh, preferably 120 to 200 mesh. For example, KGM is available from FH Diedrichs & Ludwig Post GmbH, Mannheim, Germany, Neupert Ingredients, Garstedt, Germany, C.E. Roeper GmbH, Hamburg, Germany, Baoji Konjac Chemical Co. Ltd, China. For example, a KGM E425(i) and/or E425(ii) can bused in accordance with the present invention.

According to the present invention, it may be used a Konjac glucomannan (KGM) commercially available into the market having preferably CAS RN No. 37220-17-0. For example, it may be used a Konjac gum preferably indicated with E425(i) or E425(ii), both containing Konjac glucomannan.

According to the present invention, it is used a high molecular weight KGM (e.g., $\geq 10^6$ Da, preferably e.g., from $\geq 10^6$ Da to 10^8 Da, more preferably e.g., from $\geq 10^6$ Da to 10^7 Da).

According to the present invention, it is used a high molecular weight KGM with a viscosity value comprised from 20,000 cps to 100,000 cps, preferably comprised from 25,000 cps to 80,000 cps, more preferably comprised from 30,000 cps (30,000 mPas) to 60,000 cps, even more preferably comprised from 35,000 cps to 50,000 cps, for example bigger than 36,000 cps.

Sodium hydrogen carbonate salt is available fromSolvay Chemicals International: BICAR® FOOD, A+E. Fischer-Chemie GmbH & Co. KG, Wiesbaden, Germany, Carl Dicke GmbH & Co KG, Mönchengladbach, Germany) and potassium hydrogen carbonate is available from company Dr. Paul Lohmann).

Vanilla flavor is available from Sensient, Geesthacht, Germany.

Blood orange flavour is available from OlbrichtArom GmbH & Co. KG, Leisnig, Germany.

Orange Spray dried Flavor is available from Sensient, Geesthacht, Germany.

Blue berry flavor is available from IMCD Deutschland GmbH.

Color is avalable from Vanilla Yellow P-WS, Sensient, Geesthacht, Germany.

Sucralose is available from Atlantic Chemicals Trading GmbH, Hamburg/Germany.

Citric acid (anhydrous) is available from Jungbunzlauer ("Citronensäure Anhydrat").

Citric acid monohydrate is available from Atlantic Chemicals Trading GmbH, Hamburg, Germany.

Tartaric acid can be obtained by W. Ulrich GmbH, Chemische Erzeugnisse, Germany.

Erythritol (Erylite Erythritol) can be obtained from Magnesia (Jungbunzlauer), Germany.

According to another of its aspects, subject-matter of the invention is a solid pharmaceutical, nutraceutical or food composition or a composition for medical device under EU Reg. 745/2017 which comprises the solid fast dissolving or fast dispersing combination of the invention, as above defined, and a) optionally, at least flavours and/or colorants and/or sweeteners; and b) optionally further (active) ingredients.

Illustrative and non-limiting examples of such (active) ingredients that can be combined with the solid fast dissolving or fast dispersing composition of the present invention containing KGM and Arabic gum are the following:

Antocyanines such as "Brainberry" from company Bioactor, Aronia melanocarpa extract (25% Anthocyanins) or antocyanins/polyphenols mixtures ("Berriesence") from MCB Ming Chyi Biotechnology Ltd.

Carob bean extract and fructooligosaccharide such as "CSAT+" is available from company Pharmactive Biotech Products.

Black garlic such as "ABG10+" is available from company Pharmactive Biotech Products.

Coffein: such as "Caffeine, 98%" is available from company OmniActive Health Technologies or "CaffXtend" is available from Nutriventia (Mumbai, India) or from soluble coffee extracts such as "Arabica kräftig, 23-10234", "Espresso, aromatisch (Arabica/Robusta-Blend), 23-10236"," Arabica mild, 23-10232", "Espresso, medium, Robusta, 23-10235", "Robusta, kräftig, 23-10233", "Robusta, mild, 23-10231" are available from Deutsche Kaffee Extrakt GmbH, Hamburg, Germany.

Cacao powder such as "Noir Intense", "Plaine Arome", "Extra brute", "Rouge Ultime", "Legere": 1% are available from Barry Callebout Deutschland GmbH, im Mediapark 8a, 50670 Köln. Actives in cacao are polyphenols like flavanols (epicatechin, catechin, and procyanidins) and flavonols (quercetin). anthocyanins, phenolic acids, and stilbenes. Furthermore coffein is in guarana ("Guarana Extract PDR & N.Caff BLDR22%-904") is available from OmniActive Health Technologies.

Collagens are available from the companies Gelita AG, Rousselot, Weishardt, Nitta Gelatin. Abyss or vegan collagens are available from company MCB Ming Chyi Biotechnology Ltd ("CollaGem") or from INB GmbH ("Vollagen") or from Vecollal/TCI ("VeCollal").

Chromium salts like "Chromium picolinate" are available from Vertellus, Indianapolis, USA

Niacin is available from Wegochem Europe B.V., Netherlands.

Alpha Lipoic acid such as "Alipure" is available from Alzchem Group AG, Germany.

Pumpkin seed protein powder is available from Bioriginal, Netherland.

Whey hydrolysate with an active dipeptide AP (Alanine-Proline) which inhibits the alpha glucosidase's activity such as "Pep2Dia" is available from Ingredia Dairy experts.

Cinnamon or cinnamon extracts are available from Flavex Naturextrakte GmbH, Rehlingen, Germany (Zimtrinden

Ceylanicum CO2-se Extrakt, Nr. 034.001).

Curcumin is available from the company Gencor ("HydroCurc® Liquid Grade 10%") or from company OmniActive Health Technologies ("Curcuwin Ultra+ Curcuminoids 20%" or "CurcuWIN Curcumin DNS HB Pdr 20%/EU") or from company Natural remedies, India ("Turmacin"), or from company Nutriventia, Mumbai, India ("Water Dispersible Turmeric Extract Powder 60N" or "unstain").

Vitamins (lipophilic like Vitamin A, D, E, K) and B-vitamins or the "B-vitamin complex" can be added to the formulations. Thiamine (Vitamin B-1), for example, helps the body cells convert carbohydrates into energy. Furthermore, Vitamin B6 can help with weight loss by boosting metabolism. Additionally, vitamin C, niacin, iron, calcium, and vitamin B5 can help to speed up metabolism. A slow-release vitamin C formulation is "C-Fence" which is available from Nutriventia, Mumbai, India. A heat stabilized vitamin C is "Stabilized Vitamin C 80" which is available from Nutriventia Mumbai, India.

Powders from almond, cashews, soy, rice, hemp, coconut, oats, linseed, spelt.

Oat powder is available as Hafermehl Vollkorn (Art Nr. 4.1), Rubin Mühle GmbH, Germany.

Dried fruits and/or freeze dried fruits and/or individually quick frozen (IQF) fruits and/or frozen fruit products, such as Açai, Acerola, Apple, Apricot, Aronia, Avocado, Banana, Berry mixes, Blackberry, Blackcurrant, Black Cherries, Blood Oranges, Blueberry, Boysenberry, Breadfruit, Camu Camu, Carambola, Carissa, Cherimoya, Cherries, Cherries Morello, Citrus, Cloudberry, Corinthians, Crabapples, Cranberries, Currants, Dates, Durian, Feijoa, Figs, Gooseberries, Grape, Grapefruit, Groundcherries, Guarana, Guava, Jackfruit, Juneberry, Kaffir Lime / Combava, Kiwi, Kumquats, Langsart, Lemon, Lime, Lingonberry, Longan, Loquats, Lychee, Mandarin, Mango, Mangosteen, Marionberry, Melon, Mint, Mulberries, Nectarine, Oranges, Papaya, Passion Fruit, Pawpaw, Peaches, Pear, Pineapple, Pitahaya, Plantain, Plum, Prune, Pomegranate, Prickly Pear, Pummelo, Quince, Raisins,Rambutan, Raspberries, Rhubarb, Sapodilla, Sour cherries, Soursop, Starfruit, Strawberries, Sultana, Tamarind, Tangelo, Tangerine and Watermelon.

Dried fruits and/or freeze-dried fruits and/or individually quick frozen (IQF) fruits and/or frozen fruit products are available, for example, from TALI e.K., Steinweg 1, 34298 Helsa, Germany or Allfood Lebensmittel-Handels-Gesellschaft mbH, Bavariaring 2, D-80336 München or FRUKTIA GmbH, Haferwende 10A, 28357 Bremen, Germany or Buxtrade GmbH, An den Geestergen 1, 21614 Buxtehude.

For example, Raspberries, whole freeze dried (Himbeeren ganz gefriergetrocknet) are available from Buxtrade GmbH, Germany.

Polyphenols and the like such as "WATTS`UP" are available from company Bioactor¸ Bioflavonoids from Citrus sinensis (Hesperidin).

Carnitin, Carnitin Hydrochloride such as "L-Carnitin HCl" are available from Liaoning Koncepnutra Co. Ltd.

Resveratrol such as "ResveraFen" is available from Akay Natural Ingredients Private Limited, containing resveratrol, de-bitterised fenugreek powder rich in soluble dietary fibre, Sunflower lecithin and/or Sunflower oil; or Resveratrol such as "Veri-Sperse®" from Gencor/pharmaco biotechnologies.

Capsaicin such as "Capsifen" is available from Akay Natural Ingredients Private Limited, Chili extract, fenugreek

powder, Cellulose powder and/or Lecithin, gum acacia; or "Capsimax" from OmniActive Health Technologies.

Omega-3, such as "DHA Algae Powder DAF" is available from MCB Ming Chyi Biotechnology Ltd

Complexes from Citrus Sinensis fruit extract (Anthocyanins, Hydroxycinnamic acids, Flavanones, Vitamin C) such as "Morosil" or "Red orange complex" are available from Bionap.

Combination of Weight Management Actives, such as Flavonoids like Bioflavonoids are available from Citrus sinensis (Hesperidin) and Caffeine.

Bioflavonoids from citrus sinensis & citrus paradisi (Hesperidin >80%; Naringin >5%) such as "Microbiomex®" are available from Bioactor or bioflavonoids from citrus sinensis (hesperidin > 90%) ("Cordiart") from Bioactor.

Vitamin D (Vitamin D3) powder 100000 IU/G is available from company Echemi.

Beta-glucane is available from company Leiber ("Yestimmun Beta Glucan").

Green Tea extract (EGCG," Teavigo") or ECG ("Sunphenon ECG"), or EGC "Sunphenon XLB-100") or EC ("Sunphenon EC") all are available from Taiyo.

Oils, lipids like MCT (Medium chain triglycerides), like "Powder MCT C8 coconut 70% vegan" are available from Bioriginal or "Medium Chain Triglycerides (MCT-CTS or MCT-CPH") oil powder from MCB, or Sumbia - Keto-HiMCT (high in C8 fatty acids) from Nutriventia (Mumbai, India), skim milk and whole milk and full cream milk powders from Saputo, Australia ("Instant Full cream Lactose Free powder 25 kg"), anhydrous milk, butter fat or liquid oils such as linseed oil, coconut oil.

Carallum Fimbriata Extract such as "Slimaluma" are available from Gencor Pacific Limited.

Extract from Gynostemma pentaphyllum such as "Active AMP" is available from Gencor Pacific Limited

Whey proteins (hydrolysates, concentrates, isolates), such as "Whey protein concentrate 80 Instant" are available from Vivi Solution.

Milk protein concentrates like MPC 80/85 are available from Saputo Dairy Australia Pty Ltd.

Probiotics like *B. psychraerophilum* Q5 (DSM 33131) + L. hordei KLL19 (DSM 33127) + L. harbinensis G8 (DSM 33126) such as "premix novaMETABOLISM" are available from Probionova or *Bifidobacterium breve* B-3 from Morinaga Milk Industry, a mixture of *L.acidophilus* PBS066-DSM 24936 (Synbalance LA) and *L. reuteri* PBS072-DSM25175 (SynBalance LR) and L. plantarum PBS067-DSM24937 (Synbalance LP) with the tradename MetSyn are available from company Synbalance, Italy.

In particular, the active ingredients from citrus extracts (Hesperidin, Naringin) have been specifically designed to support gut and immune health by beneficially shifting the gut microbiome composition, lowering gut inflammation, and strengthening the gut barrier.

They are particularly beneficial because there is a greater production of Short Chain Fatty Acids - mainly butyrate and propionate - essential compounds for the gut barrier maintenance and regulation of the immune system. Furthermore, reactive oxygen species (ROS) are reduced by Microbiomex®.

Usually, it is difficult to get a homogenous mixture of KGM and the above substances. The composition of the invention also solves this problem so that any other useful substance may be added to the composition of the invention, provided that said substance is chemically compatible with the other components of the composition of

the invention.

As said, the solid fast dissolving or fast dispersing composition of the invention may also comprise colorants, to improve the appearance of the composition when mixed with water.

Said colorants may also be active coloured ingredient, such as Morosil™ (comprising anthocyanins, hydroxycinnamic acids, flavanones, and ascorbic acid) or Brainberry® (comprising cyanidin-3-O-glycosides from *Aronia melanocarpa*) without adding colorants.

To that purpose, it is important to select the composition of the invention having the correct pH, i.e., pH < 6, so that said active-coloured ingredients may develop their nice red colour (both ingredients do not show a red colour at pH 7 or higher).

Accordingly, when the above active-coloured ingredients are added to the composition of the invention to provide both a further beneficial activity and colour, then it is important that they are added to compositions (B), having pH lower than 6.

If needed or desired, any further conventional excipient may be added to the composition, provided it is chemically compatible with the other components of the composition of the invention.

As said, the solid fast dissolving or fast dispersing composition of the invention is a mixture of powders and/or granules which must be mixed with suitable water-based fluid, as above indicated, before intake.

As said, the solid fast dissolving or fast dispersing composition of the invention is to be administered by oral route, after having been mixed with water or another water-based fluid.

A drinkable composition obtained by mixing the solid fast dissolving or fast dispersing composition of the invention with water or another water-based fluid is another subject-matter of the invention.

So, according to another of its aspects, subject-matter of the invention is a liquid/fluid composition comprising the solid fast dissolving or fast dispersing combination or the composition of the invention, and a suitable drinkable liquid, preferably, but not limited to, water.

The drinkable composition of the invention may be prepared by diluting the solid fast dissolving or fast dispersing combination or the composition of the invention with a suitable liquid, preferably water.

According to one of its aspects, the subject matter of the present invention relates to a process for preparing a drinkable compositition comprising the steps of:

a) putting into contact a solid fast dissolving or fast dispersing composition of the invention with a water-based fluid, which is selected from water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixtures thereof;

b) mixing, preferably with the aid of a spoon, for a time from 10 seconds to 5 minutes, preferably from 1 minute to 3 minutes, at a temperature from 18 °C to 40°C, preferably from 18°C to 25 °C.

The solid fast dissolving or fast dispersing compositions and/or the drinkable compositions of the invention are for

use in a subject, said subject being a mammal, preferably a human being.

A solid fast dissolving or fast dispersing composition of the invention may be prepared by simply blending the solid powder components of the composition and then may be packaged in multi-dose container or as a unit dose form, such as a sachet of a stick-pack.

The mixture of powders and/or granules of the invention can be part of a two-part system (where the powder is separated from the fluid phase, e.g., in a cap of a biphase container), a can, a cardboard can, paper can, plastic packaging boxes, biodegradable packaging containers.

The solid fast dissolving or fast dispersing compositions and/or the drinkable compositions of the invention are useful in the management of body weight, especially in the treatment and/or prevention of overweight and obesity, and also for lowering cholesterol and blood sugar levels.

According to another of its aspects, it is a subject-matter of the invention the solid fast dissolving or fast dispersing compositions and/or the drinkable compositions of the invention for use in reducing body weight in overweight and obese subjects.

According to another of its aspects, it is a subject-matter of the invention the use of the solid fast dissolving or fast dispersing compositions and/or the drinkable compositions of the invention in promoting body weight loss in a healthy subject. In this case, the use is not a therapeutic one.

According to another of its aspects, it is a subject-matter of the invention the solid fast dissolving or fast dispersing compositions and/or the drinkable compositions of the invention for use in lowering cholesterol and blood sugar levels in a subject.

The invention also relates to a method for reducing body weight which comprises administering to a subject in need thereof an effective amount of a solid fast dissolving or fast dispersing composition and/or a drinkable composition of the invention.

The solid fast dissolving or fast dispersing composition of the invention is generally administered at a dose of about 1-5 g/day of KGM, preferably 2-4 g/day of KGM, more preferably about 3g /day of KGM, preferably in the context of an energy restricted diet. For instance, the solid fast dissolving or fast dispersing composition of the invention is administered at a dose of 1 g/day of KGM three times per day.

Representative examples of the solid fast dissolving or fast dispersing compositions and drinkable compositions obtained therefrom of the invention are reported in the Experimental Section which follows, for illustrative purposes only.

The following are representative practical examples.

EXPERIMENTAL SECTION

Evaluation of viscosity

After the ingestion of a water formulation comprising KGM, the water penetrates into the tissue or blood stream in the body. To simulate the vanishing of water from the formulation a series of experiments was made; gel formation occurs again when the water is no longer a significant part of the formulation and gel formation lowers food craving. Figure 1 shows a simulation of fluid KGM behaviour after ingestion.

With Reference to Figure 1, an increase in the viscosity is expected leading to a higher viscous composition/gel, depending on the amount of water. This can be simulated by formulating a usually fluid composition (e.g., KGM/Arabic gum/salt tripotassium citrate monohydrate/colorant Vanilla Yellow P-WS from Sensient/water 1g/1.8g/0.8g/0.06/96.3g) by taking out the water (composition with 80%, 60%, 40%, 20% of water instead of 96.3 g of water). Indeed, an increase of viscosity and gel formation was observed in the samples from 80% to 20% of water.

Examples of compositions

Representative Examples of solid compositions in powder form of the invention in mixed with water q.s. to 100 g. The viscosity behaviour of the compositions of the Examples was observed.

The viscosity behaviour and the drinkability was evaluated and compared to a pure KGM/water (1g/99g) composition.

Example 1 (Comparative Example)

Raw material	**Amount (g)**
Konjac glucomannan	1.00
Water	99.00

Table 1

Konjac Glucomannan powder was added to water in a beverage glass and stirred with a spoon. Lump formation was observed. A greyish, lump containing gel formulation was obtained that is not appealing for a consumer. Drinking of this formulation is impossible due to the high viscosity of 36,000 mPas. The gel does not flow so that a consumer can not drink it from the beverage container. Furthermore the taste of this Konjac glucomannan gel is very bad.

Example 2

Raw material	**Amount (g)**
Konjac glucomannan	1.000-1.100
Gum Arabic	1.800
Tripotassium Citrate Monohydrate	0.800
Citric acid anhydrous	1.000
Morosil Citrus Sinensis fruit extract (Anthocyanins, Hydroxycinnamic acids, Flavanones, Vitamin C)	0.166
Sucralose	0.020
Blood orange flavor	0.300
Water	ad 100

Table 2

Konjac Glucomannan, Gum arabic, Tripotassium Citrate Monohydrate, Citric acid anhydrous, Morosil, Sucralose, Blood orange flavor were mixed, and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1)..

A low pH formulation with a red color is obtained. This acid pH is important because active ingredients such as Morosil only partially show their red color at neutral pH.

Example 3

Raw material	**Amount (g)**
Konjac glucomannan	1.000-1.100
Gum Arabic	1.800
Tripotassium Citrate Monohydrate	0.800
Citric acid anhydrous	0.100
Sucralose	0.015
Vanilla Flavor	0.300
Color: Vanilla Yellow	0.030
Water	ad 100

Table 3

Konjac Glucomannan, Gum arabic, Tripotassium Citrate Monohydrate, Citric acid anhydrous, Sucralose, Vanilla Flavor, Color additive (Vanilla Yellow) were mixed, and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 4

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Tripotassium Citrate Monohydrate	0.800
Water	ad 100

Table 4

Konjac Glucomannan, Gum arabic um and Tripotassium Citrate Monohydrate were mixed and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 5

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Tripotassium Citrate Monohydrate	1.200

Citric acid anhydrous	1.000
Brainberry Aronia melanocarpa extract (25% Anthocyanins)	0.022
Sucralose	0.015
Blue berry flavor	0.300
Water	ad 100

Table 5

Konjac Glucomannan, Gum Arabic, Tripotassium Citrate Monohydrate, Citric acid anhydrous, Brainberry (Aronia melanocarpa extract), Sucralose and blueberry flavor were mixed and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 6

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Tripotassium Citrate Monohydrate	0.800
Citric acid anhydrous	1.000
Watts`up Citrus sinensis extract (90% hesperidin)	0.022
Caffeine	0.025
Sucralose	0.015
Color: Vanilla Yellow	0.030
Orange Flavor	0.400
Water	ad 100

Table 6

Konjac Glucomannan, Gum Arabic, Tripotassium Citrate Monohydrate, Citric acid anhydrous, Watts`up (bioflavaonoids from citrus sinensis (Hesperidin), caffeine, sucralose the color additive (Vanilla Yellow), and orange flavor were mixed, and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 7

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Tripotassium Citrate Monohydrate	3.000
Water	ad 100

Table 7

Konjac Glucomannan and Tripotassium Citrate Monohydrate were mixed and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1). It is a fluid. It gives a fluid gel after 10-15 minutes.

Example 8

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Potassium gluconate	3.000
Water	ad 100

Table 8

Konjac Glucomannan and Potassium Gluconate were mixed, and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1). It is a fluid. It gives a fluid gel after 10-15 minutes.

Example 9

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Sodium Hydrogen Carbonate	0.500
Citric acid anhydrous	1.000
Sucralose	0.030
Vanilla Flavor	0.200
Color: Vanilla Yellow	0.030
Water	ad 100

Table 9

Konjac Glucomannan, Gum Arabic, Sodium Hydrogen Carbonate, Citric acid anhydrous, Sucralose, Vanilla Flavor and the color additive (Vanilla Yellow) were mixed, and the powder mixture was added to water and stirred with a spoon. The mixture gives a foam (CO_2 release) that breaks down after a while. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 10

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Sodium Ascorbate	0.800
Citric acid anhydrous	1.000
Sucralose	0.020

Blood orange Flavor	0.200
Color: Vanilla Yellow	0.030
Water	ad 100

Table 10

Konjac Glucomannan, Gum Arabic, Sodium Ascorbate, Citric acid anhydrous, Sucralose, Blood orange flavor, Color additive (Vanilla Yellow) were mixed, and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 11

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Calcium chloride x 2 H2O	0.800
Citric acid anhydrous	1.000
Sucralose	0.020
Blood orange flavor	0.200
Color: Vanilla Yellow	0.030
Water	ad 100

Table 11

Konjac Glucomannan, Gum Arabic, Calcium chloride Dihydrate, Citric acid anhydrous, Sucralose, Blood orange flavor, Color additive (Vanilla Yellow) were mixed, and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 12

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
DHA Algae Powder DAF Docosahexaenoic acid	1.000
Sodium hydrogen carbonate	0.500
Citric acid anhydrous	1.000
Sucralose	0.030
Vanilla Flavor	0.200
Color: Vanilla Yellow	0.030
Water	ad 100

Table 12

Konjac Glucomannan, Gum Arabic, DHA Algae Powder DAF, Sodium hydrogen carbonate, Citric acid anhydrous, Sucralose, Vanilla flavor, Color additive (Vanilla Yellow) were mixed and the powder mixture was added to water and stirred with a spoon. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 13

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Capsifen Chili extract, fenugreek powder, Cellulose powder, Lecithin, Gum accacia	1.000
Sodium hydrogen carbonate	0.300
Citric acid anhydrous	0.700
Sucralose	0.030
Orange Flavor	0.200
Color: Vanilla Yellow	0.030
Water	ad 100

Table 13

Konjac Glucomannan, Gum Arabic, Capsifen (Chili extract, fenugreek powder, Cellulose powder, Lecithin, gum acacia), Sodium hydrogen carbonate, Citric acid anhydrous, Sucralose, Orange Flavour, Color additive (Vanilla Yellow) were mixed and the powder mixture was added to water and stirred with a spoon. The mixture gives a small foam (CO_2 release) that breaks down after a while. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1). The Capsifen particles are homogenous suspended in the mixture directly after the preparation.

Example 14

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Tripotassium Citrate Monohydrate	1.000
Citric acid anhydrous	0.700
Microbiomex Bioflavonoids from citrus sinensis & citrus paradisi (Hesperidin >80%;Naringin >5%)	0.166
Sucralose	0.020
Color: Vanilla Yellow	0.030

Blood orange flavor	0.400
Water	ad 100

Table 14

Konjac Glucomannan, Gum Arabic, Tripotassium Citrate Monohydrate, Citric acid anhydrous, Bioflavonoids from citrus sinensis & citrus paradisi, Sucralose, Color additive (Vanilla Yellow) and Blood orange flavor were mixed and the powder mixture was added to water and stirred with a spoon. The mixture gives a small foam (CO2 release) that breaks down after a while. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 15

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Gum Arabic	1.800
Sodium hydrogen carbonate	0.500
Citric acid anhydrous	1.000
Sucralose	0.030
Whey protein concentrate 80 Instant Whey protein concentrate	17.000
Morosil Citrus Sinensis fruit extract (Anthocyanins, Hydroxycinnamic acids, Flavanones, Vitamin C)	0.166
Blood orange flavor	0.400
Water	ad 100

Table 15

Konjac Glucomannan, Gum Arabic, Sodium hydrogen carbonate, Citric acid anhydrous, Sucralose, Whey protein concentrate 80 (Whey protein concentrate), Morosil (Citrus Sinensis fruit extract), Blood orange flavor were mixed, and the powder mixture was added to water and stirred with a spoon. The mixture gives a small foam (CO2 release) that breaks down after a while. The formulation has a lower viscosity then 1g pure Konjac Glucomannan in 99 g water (Comparative Example 1).

Example 16

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Sodium hydrogen carbonate	0.300
Citric acid anhydrous	0.700

Water	ad 100

Table 16

Konjac Glucomannan, sodium hydrogen carbonate, Citric acid anhydrous were mixed and the powder mixture was added to water and stirred with a spoon. Very fast dissolution of Konjac Glucomannan. Due to the dissolved CO_2 a creamy taste result. A smooth gel (drinkable) results.

Example 17

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Sodium hydrogen carbonate	0.300
Citric acid anhydrous	0.700
Tripotassium Citrate Monohydrate	0.800
Water	ad 100

Table 17

Konjac Glucomannan, Sodium hydrogen carbonate, Citric acid anhydrous and Tripotassium Citrate Monohydrate were mixed, and the powder mixture was added to water and stirred with a spoon. Very fast dissolution of Konjac. A fluid is obtained. After 15 min due to the dissolved CO2 a creamy taste result. A smooth gel (drinkable) result.

Example 18

Raw material	**Tradename/Company**	**600 g**	**100 g**
KGM	Cerokon Konjac 120-200 mesh/min 36000 cps Type CKHY	6.00	1.00
Arabic gum	Arabic gum powder Agg with instant properties E414 200 mesh -Food grade-; Highly emulsifying Type 4810/PC-11009-002	15.60	2.60
Tripotassium Citrate Monohydrate	Tripotassium Citrate Monohydrate, Batch 3058975, Item 0344, Pharmavit	4.80	0.80
Coffein powder (Koffeingehalt) 3,5 – 5,5 Robusta, mild	Robusta, mild, 23-10231	9.00	1.50

Sucralose	Sucralose	0.09	0.015
e.g., Milk	Gut & Gunstig Fettarme H Milch (1,5%) EDEKA	564.51	94.085

Table 18

A test conducted on milk and coffee is reported.

In practice, a solid composition was prepared, in accordance with the present invention, containing 1% KGM and a mild Robusta coffee powder (1.5 g/100 g; caffeine 52.5-82.5 mg/100 g). Subsequently, said composition was added to milk. A fluid composition of milk and coffee with good color, odor, taste and free of lumps was immediately obtained.

Example 19

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Erythritol	1.000
Water	ad 100

Table 19

Konjac Glucomannan and Erythritol were mixed and the powder mixture was added to water and stirred with a spoon. Very fast dissolution of Konjac Glucomannan (homogenous composition without lumps).

Example 20

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Erythritol	0.500
Water	ad 100

Table 20

Konjac Glucomannan and Erythritol were mixed and the powder mixture was added to water and stirred with a spoon. Very fast dissolution of Konjac Glucomannan (homogenous composition without lumps).

Example 21

Raw material	**Amount (g)**
Konjac glucomannan	1.000
Citric acid (anhydrous)	0.400
Water	ad 100

Table 21

Konjac Glucomannan and Citric acid (anhydrous) were mixed and the powder mixture was added to water and stirred with a spoon. Very fast dissolution of Konjac Glucomannan without lumps formation (small KGM particles are visible in water directly after the mixture was prepared; after a while from these fluid particles starts the conversion to a fluid gel).

Example 22

Raw material	Amount (g)
Konjac glucomannan	1.000
Tartaric acid	0.500
Water	ad 100

Table 22

Konjac Glucomannan and Tartaric acid were mixed and the powder mixture was added to water and stirred with a spoon. Very fast dissolution of Konjac Glucomannan without lumps formation (small KGM particles are visible in water directly after the mixture was prepared; after a while from these fluid particles starts the conversion to a fluid gel).

CLAIMS

1. A solid fast dissolving or fast dispersing composition comprising or, alternatively, consisting of, a high molecular weight Konjac glucomannan (KGM) in combination with at least one further component which is selected from the group comprising or, alternatively, consisting of:

(C) at least one water-soluble salt and, optionally, at least one organic acid, preferably, at least one hydroxy acid, with the provision that said at least one water-soluble salt is not a phosphate or polyphosphate salt; and/or

(D') at least one effervescent system comprising or, alternatively, consisting of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance and, optionally, at least one water-soluble salt; and/or

(E) at least one sugar alcohol, preferably at least one sugar alcohol erythritol; and/or

(F) at least one sugar alcohol, preferably at least one sugar alcohol erythritol, and at least one component selected from (C) and (D'); and/or

(G) at least one organic acid, preferably at least one hydroxy acid; and/or

their mixtures thereof,

wherein said solid fast dissolving or fast dispersing composition is in the form of a mixture of powders and/or granules.

2. The solid composition according to claim 1, wherein said high molecular weight Konjac glucomannan (KGM) has a molecular weight equal to or bigger than 10^6 Da; preferably, has a molecular weight comprised from bigger than 10^6 Da to 10^8 Da; more preferably, has a molecular weight comprised from 10^7 Da to 10^8 Da.

3. The solid composition according to claim 1 or 2, wherein said high molecular weight Konjac glucomannan (KGM) has viscosity value preferably comprised from 20,000 cps to 100,000 cps, preferably comprised from 25,000 cps to 80,000 cps, more preferably comprised from 30,000 cps to 60,000 cps, even more preferably comprised from 35,000 cps to 50,000 cps, and preferably has glucomannan content comprised from bigger than 85% to 98%, more preferably from 90% and 95%.

4. The solid composition according to any one of claims 1-3, wherein said at least one water-soluble salt is preferably selected from the group comprising or, alternatively, consisting of:

- citrate salts; preferably, sodium and/or potassium citrate salts; more preferably tripotassium citrate salts, tripotassium citrate monohydrate salts, trisodium citrate salts, trisodium citate anhydrous salts, magnesium citrate, calcium citrate, zinc citrate, or their mixtures thereof;
- ascorbate salts; preferably, sodium and/or potassium ascorbate salts, calcium and/or magnesium ascorbate salts, zinc ascorbate, zinc ascorbate monohydrate salts, or their mixtures thereof;
- gluconate salts; preferably, sodium and/or potassium gluconate salts, calcium and/or magnesium gluconate salts, zinc gluconate salt, or their mixtures thereof;
- chloride salts; preferably, sodium chloride, potassium chloride, calcium chloride, magnesium chloride, ammonium chloride, or their mixture thereof.
- lactate salts; preferably, calcium lactate, calcium lactate pentahydrate, sodium and/or potassium lactate, zinc

lactate, zinc lactate dihydrate, or their mixtures thereof;

- tartrate salts; preferably, sodium and/or potassium tartrate, potassium sodium tartrate, or their mixtures thereof;
- sulfate salts; preferably, sodium and/or potassium sulfate salts;
- glycinate salts; preferably, sodium and/or potassium glycinate salts;
- bisglycinate salts; preferably, zinc bisglycinate or zinc bisglycinate monohydrate salts;
- acetyl taurinate salts; preferably, calcium and/or magnesium acetyl taurinate salts; or their mixturs thereof.

5. The solid fast dissolving or fast dispersing composition according to any one of claims 1-4, wherein said at least one organic acid is selected from the group comprising or, alternatevily, consisting of citric acid, lactic acid, ascorbic acid, tartaric acid, malic acid, or glucono-delta-lactone (GdL), preferably is citric acid, tartaric acid or mixture thereof..

6. The solid fast dissolving or fast dispersing composition according to any one of claims 1-5, wherein said effervescent system comprises or, alternatively, consists of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance, wherein said basic substance is selected from carbonate or bicarbonate salts; more preferably, sodium and/or potassium carbonate, sodium and/or potassium bicarbonate, or their mixtures thereof; and said at least one acidic substance is selected from organic acids; preferably, hydroxy acids such as citric acid and/or tartaric acid.

7. The solid fast dissolving or fast dispersing composition according to any one of claims 1-6, wherein said sugar alcohol is erythritol.

8. The solid fast dissolving or fast dispersing composition according to any one of claims 1-7, wherein said composition may further comprise a) optionally, at least one flavours and/or colorants and/or sweeteners and/or mixtures thereof; and/or b) optionally, at least one further active ingredient which is selected from:

- antocyanines or antocyanins/polyphenols mixtures;
- carob bean extract and fructooligosaccharide;
- black garlic such as ABG10+;
- coffein such as Caffeine, 98% or CaffXtend or soluble coffee extracts such as Arabica kräftig, 23-10234, Espresso, aromatisch (Arabica/Robusta-Blend), 23-10236, Arabica mild, 23-10232, Espresso, medium, Robusta, 23-10235, Robusta, kräftig, 23-10233, Robusta, mild, 23-10231;
- cacao powder such as Noir Intense, Plaine Arome, Extra brute, Rouge Ultime, Legere 1%; preferably, actives in cacao are polyphenols like flavanols such as epicatechin, catechin, and procyanidins, and flavonols such as quercetin, anthocyanins, phenolic acids, and stilbenes; coffein is in guarana Guarana Extract PDR & N.Caff BLDR22%-904;
- collagens, and vegan collagens;
- chromium salts such as chromium picolinate;
- niacin;
- alpha lipoic acid such as Alipure;
- pumpkin seed protein powder;

- whey hydrolysate with an active dipeptide AP (Alanine-Proline) which inhibits the alpha glucosidase's activity such as Pep2Dia;
- cinnamon or cinnamon extracts;
- curcumin such as HydroCurc® Liquid Grade 10%, or Curcuwin Ultra+ Curcuminoids 20%, or CurcuWIN Curcumin DNS HB Pdr 20%/EU, or Turmacin, or Water Dispersible Turmeric Extract Powder 60N;
- vitamins (lipophilic vitamins such as A, D, E, K, and B-vitamins or the B-vitamin complex; or thiamine (Vitamin B-1), vitamin B6, vitamin C, niacin, iron, calcium, and vitamin B5;
- powders from almond, cashews, soy, rice, hemp, coconut, oats, linseed, spelt;
- dried fruits and/or freeze dried fruits and/or individually quick frozen (IQF) fruits and/or frozen fruit products;
- polyphenols and the like such as WATTS`UP;
- bioflavonoids from Citrus sinensis (Hesperidin);
- carnitin, carnitin hydrochloride such as L-Carnitin HCl;
- resveratrol such as ResveraFen, or Veri-Sperse®;
- capsaicin such as Capsifen, chili extract, fenugreek powder, cellulose powder and/or lecithin, acacia; or capsimax;
- omega-3, such as DHA Algae Powder DAF;
- complexes from Citrus Sinensis fruit extract (anthocyanins, hydroxycinnamic acids, flavanones, vitamin C) such as Morosil or Red orange complex;
- combination of weight management actives, such as flavonoids like bioflavonoids (Hesperidin) and caffeine;
- bioflavonoids from citrus sinensis & citrus paradisi (Hesperidin >80%; Naringin >5%) such as "Microbiomex®", or bioflavonoids from citrus sinensis (hesperidin > 90%) Cordiart;
- vitamin D (vitamin D3) powder 100000 IU/G;
- beta-glucane such as Yestimmun Beta Glucan;
- green tea extract (EGCG, Teavigo) or ECG (Sunphenon ECG), or EGC (Sunphenon XLB-100) or EC (Sunphenon EC;
- oils, lipids like MCT (medium chain triglycerides) such as Powder MCT C8 coconut 70% vegan, or medium chain triglycerides (MCT-CTS or MCT-CPH") oil powder from MCB, or skim milk and whole milk and full cream milk powders, anhydrous milk, butter fat or liquid oils such as linseed oil, coconut oil;
- carallum fimbriata extract such as Slimaluma;
- extract from Gynostemma pentaphyllum such as Active AMP;
- whey proteins (hydrolysates, concentrates, isolates), such as whey protein concentrate 80 I;
- milk protein concentrates such as MPC 80/85;
- probiotics such as *B. psychraerophilum* Q5 (DSM 33131) or *L. hordei* KLL19 (DSM 33127) or *L. harbinensis* G8 (DSM 33126) and /or *Bifidobacterium breve* B-3, or a mixture of *L. acidophilus* PBS066-DSM 24936 and *L. reuteri* PBS072-DSM25175 and *L. plantarum* PBS067-DSM24937;

and mixtures thereof.

9. A process for preparing a drinkable compositition comprising the steps of:

a) putting into contact a solid fast dissolving or fast dispersing composition according to any one of claims 1-8 with a water-based fluid, which is preferably selected from water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixtures thereof;

b) mixing, preferably with the aid of a spoon, for a time from 10 seconds to 5 minutes, preferably from 1 minute to 3 minutes, at a temperature from 18 °C to 40°C, preferably from 18°C to 25 °C.

10. A drinkable composition obtained by the process according to claim 9 comprising a solid fast dissolving or fast dispersing composition according to any one of claims 1-8 with a water-based fluid, which is preferably selected from water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixtures thereof.

11. The solid fast dissolving or fast dispersing composition composition according to any one of claims 1-8, or the drinkable composition according to claim 10, for use in a method for managing weight loss or overweight reduction in a subject in need.

12. The solid fast dissolving or fast dispersing composition composition according to any one of claims 1-8, or the drinkable composition according to claim 10, for use in a method to promote body weight loss in a healthy subject, or to reduce body weight in an overweight and/or obese subjects.

13. The solid fast dissolving or fast dispersing composition composition according to any one of claims 1-8, or the drinkable composition according to claim 10, for use in a method for reducing cholesterol and blood sugar levels in a subject in need.

AMENDED CLAIMS
received by the International Bureau on 24 July 2024 (24.07.2024)

1. A solid fast dissolving or fast dispersing composition comprising or, alternatively, consisting of, a high molecular weight Konjac glucomannan (KGM) in combination with at least one further component which is selected from the group comprising or, alternatively, consisting of:

(C) at least one water-soluble salt and, optionally, at least one organic acid, preferably, at least one hydroxy acid, with the provision that said at least one water-soluble salt is not a phosphate or polyphosphate salt; and/or

(D') at least one effervescent system comprising or, alternatively, consisting of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance and, optionally, at least one water-soluble salt; and/or

(E) at least one sugar alcohol, preferably at least one sugar alcohol erythritol; and/or

(F) at least one sugar alcohol, preferably at least one sugar alcohol erythritol, and at least one component selected from (C) and (D'); and/or

(G) at least one organic acid, preferably at least one hydroxy acid; and/or

their mixtures thereof,

wherein said solid fast dissolving or fast dispersing composition is in the form of a mixture of powders and/or granules, wherein said high molecular weight Konjac glucomannan (KGM) has a molecular weight equal to or bigger than 10^6 Da, and, wherein said high molecular weight Konjac glucomannan (KGM) has viscosity value preferably comprised from 20,000 mPa·s to 100,000 mPa·s.

2. The solid fast dissolving or fast dispersing composition according to claim 1, wherein said high molecular weight Konjac glucomannan (KGM) has a molecular weight comprised from bigger than 10^6 Da to 10^8 Da; preferably, it has a molecular weight comprised from 10^7 Da to 10^8 Da.

3. The solid fast dissolving or fast dispersing composition according to claim 1 or 2, wherein said high molecular weight Konjac glucomannan (KGM) has viscosity value preferably comprised from 25,000 mPa·s to 80,000 mPa·s, preferably comprised from 30,000 mPa·s to 60,000 mPa·s, more preferably comprised from 35,000 mPa·s to 50,000 mPa·s.

4. The solid fast dissolving or fast dispersing composition according to anyone claims 1-3, wherein said high molecular weight Konjac glucomannan (KGM) preferably has glucomannan content comprised from bigger than 85% to 98%, more preferably from 90% and 95%.

5. The solid composition according to any one of claims 1-4, wherein said at least one water-soluble salt is preferably selected from the group comprising or, alternatively, consisting of:

- citrate salts; preferably, sodium and/or potassium citrate salts; more preferably tripotassium citrate salts, tripotassium citrate monohydrate salts, trisodium citrate salts, trisodium citate anhydrous salts, magnesium citrate, calcium citrate, zinc citrate, or their mixtures thereof;
- ascorbate salts; preferably, sodium and/or potassium ascorbate salts, calcium and/or magnesium ascorbate salts,

zinc ascorbate, zinc ascorbate monohydrate salts, or their mixtures thereof;

- gluconate salts; preferably, sodium and/or potassium gluconate salts, calcium and/or magnesium gluconate salts, zinc gluconate salt, or their mixtures thereof;

- chloride salts; preferably, sodium chloride, potassium chloride, calcium chloride, magnesium chloride, ammonium chloride, or their mixture thereof.

- lactate salts; preferably, calcium lactate, calcium lactate pentahydrate, sodium and/or potassium lactate, zinc lactate, zinc lactate dihydrate, or their mixtures thereof;

- tartrate salts; preferably, sodium and/or potassium tartrate, potassium sodium tartrate, or their mixtures thereof;

- sulfate salts; preferably, sodium and/or potassium sulfate salts;

- glycinate salts; preferably, sodium and/or potassium glycinate salts;

- bisglycinate salts; preferably, zinc bisglycinate or zinc bisglycinate monohydrate salts;

- acetyl taurinate salts; preferably, calcium and/or magnesium acetyl taurinate salts; or their mixturs thereof.

6. The solid fast dissolving or fast dispersing composition according to any one of claims 1-5, wherein said at least one organic acid is selected from the group comprising or, alternatevily, consisting of citric acid, lactic acid, ascorbic acid, tartaric acid, malic acid, or glucono-delta-lactone (GdL), preferably is citric acid, tartaric acid or mixture thereof.

7. The solid fast dissolving or fast dispersing composition according to any one of claims 1-6, wherein said effervescent system comprises or, alternatively, consists of at least one basic substance capable of releasing carbon dioxide in the presence of at least one acidic substance, wherein said basic substance is selected from carbonate or bicarbonate salts; more preferably, sodium and/or potassium carbonate, sodium and/or potassium bicarbonate, or their mixtures thereof; and said at least one acidic substance is selected from organic acids; preferably, hydroxy acids such as citric acid and/or tartaric acid.

8. The solid fast dissolving or fast dispersing composition according to any one of claims 1-7, wherein said sugar alcohol is erythritol.

9. The solid fast dissolving or fast dispersing composition according to any one of claims 1-8, wherein said composition may further comprise a) optionally, at least one flavours and/or colorants and/or sweeteners and/or mixtures thereof; and/or b) optionally, at least one further active ingredient which is selected from:

- antocyanines or antocyanins/polyphenols mixtures;

- carob bean extract and fructooligosaccharide;

- black garlic;

- coffein such as Caffeine, 98% or soluble coffee extracts such as Arabica kräftig, 23-10234, Espresso, aromatisch (Arabica/Robusta-Blend), 23-10236, Arabica mild, 23-10232, Espresso, medium, Robusta, 23-10235, Robusta, kräftig, 23-10233, Robusta, mild, 23-10231;

- cacao powder such as Noir Intense, Plaine Arome, Extra brute, Rouge Ultime, Legere 1%; preferably, actives in cacao are polyphenols like flavanols such as epicatechin, catechin, and procyanidins, and flavonols such as quercetin, anthocyanins, phenolic acids, and stilbenes; coffein is in guarana Guarana Extract PDR & N.Caff BLDR22%-904;

- collagens, and vegan collagens;
- chromium salts such as chromium picolinate;
- niacin;
- alpha lipoic acid;
- pumpkin seed protein powder;
- whey hydrolysate with an active dipeptide AP (Alanine-Proline) which inhibits the alpha glucosidase's activity;
- cinnamon or cinnamon extracts;
- curcumin such as HydroCurc® Liquid Grade 10%, or Curcuwin Ultra+ Curcuminoids 20%, or CurcuWIN Curcumin DNS HB Pdr 20%/EU, or Turmacin, or Water Dispersible Turmeric Extract Powder 60N;
- vitamins (lipophilic vitamins such as A, D, E, K, and B-vitamins or the B-vitamin complex; or thiamine (Vitamin B-1), vitamin B6, vitamin C, niacin, iron, calcium, and vitamin B5;
- powders from almond, cashews, soy, rice, hemp, coconut, oats, linseed, spelt;
- dried fruits and/or freeze-dried fruits and/or individually quick frozen (IQF) fruits and/or frozen fruit products;
- polyphenols and the like;
- bioflavonoids from Citrus sinensis (Hesperidin);
- carnitin, carnitin hydrochloride such as L-Carnitin HCl;
- resveratrol such as ResveraFen, or Veri-Sperse®;
- capsaicin such as Capsifen, chili extract, fenugreek powder, cellulose powder and/or lecithin, acacia; or capsimax;
- omega-3, such as DHA Algae Powder DAF;
- complexes from Citrus Sinensis fruit extract (anthocyanins, hydroxycinnamic acids, flavanones, vitamin C) such as Morosil or Red orange complex;
- combination of weight management actives, such as flavonoids like bioflavonoids (Hesperidin) and caffeine;
- bioflavonoids from citrus sinensis & citrus paradisi (Hesperidin >80%; Naringin >5%) such as "Microbiomex®", or bioflavonoids from citrus sinensis (hesperidin > 90%) Cordiart;
- vitamin D (vitamin D3) powder 100000 IU/G;
- beta-glucane such as Yestimmun Beta Glucan;
- green tea extract (EGCG, Teavigo) or ECG (Sunphenon ECG), or EGC (Sunphenon XLB-100) or EC (Sunphenon EC;
- oils, lipids like MCT (medium chain triglycerides) such as Powder MCT C8 coconut 70% vegan, or medium chain triglycerides (MCT-CTS or MCT-CPH") oil powder from MCB, or skim milk and whole milk and full cream milk powders, anhydrous milk, butter fat or liquid oils such as linseed oil, coconut oil;
- carallum fimbriata extract such as Slimaluma;
- extract from Gynostemma pentaphyllum such as Active AMP;
- whey proteins (hydrolysates, concentrates, isolates), such as whey protein concentrate 80 I;
- milk protein concentrates such as MPC 80/85;
- probiotics such as *B. psychraerophilum* Q5 (DSM 33131) or *L. hordei* KLL19 (DSM 33127) or *L. harbinensis* G8

(DSM 33126) and /or *Bifidobacterium breve* B-3,

and mixtures thereof.

10. A process for preparing a drinkable compositition comprising the steps of:

a) putting into contact a solid fast dissolving or fast dispersing composition according to any one of claims 1-8 with a water-based fluid, which is selected from water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixtures thereof;

b) mixing for a time from 10 seconds to 5 minutes, at a temperature from 18 °C to 40°C.

11. The process according to claim 10, wherein in step b) the mixing, preferably with the aid of a spoon, is for a time comprised from 1 minute to 3 minutes, at a temperature comprised from 18°C to 25°C.

12. A drinkable composition obtained by the process according to claim 10 and 11 comprising a solid fast dissolving or fast dispersing composition according to any one of claims 1-9 with a water-based fluid, which is selected from water, a beverage, a milk, a milk substitute, a plant-based milk, non dairy substitute, non-dairy beverage, instant milk; non-alcoholic, alcoholic, a fruit drink, energy drink, fortified drink, herbal drink, sport drink, yogurt drink, buttermilk drink, probiotic drink, a nectar, a juice or a cappuccino, a smoothie, a coffee, a macchiato, a cafe au lait, a coffee milk, a frapuccino, an espresso, an espresso macchiato, a latte espresso, a flat white, a caffee latte, a cacao, or mixtures thereof.

13. The solid fast dissolving or fast dispersing composition composition according to any one of claims 1-9, or the drinkable composition according to claim 12, for use in a method for managing weight loss or overweight reduction in a subject in need.

14. The solid fast dissolving or fast dispersing composition composition according to any one of claims 1-9, or the drinkable composition according to claim 12, for use in a method to promote body weight loss in a healthy subject, or to reduce body weight in an overweight and/or obese subject.

15. The solid fast dissolving or fast dispersing composition composition according to any one of claims 1-9, or the drinkable composition according to claim 12, for use in a method for reducing cholesterol and blood sugar levels in a subject in need.

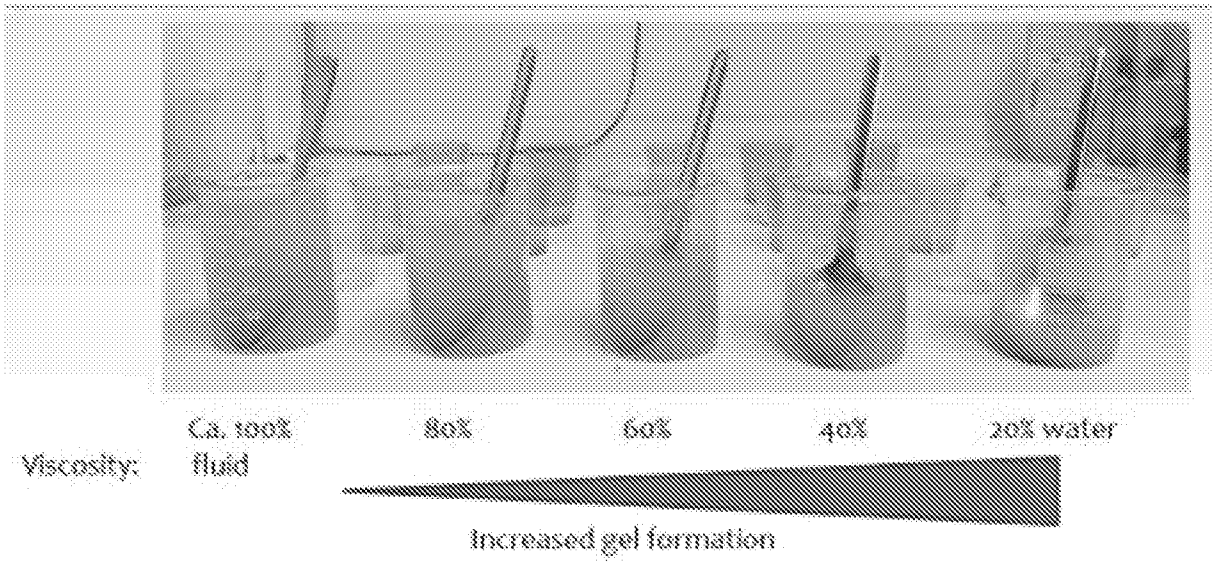

Ca. 100%
80%
60%
40%
20% water
Viscosity:
fluid
Increased gel formation

Figure 1

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2024/052965

A. CLASSIFICATION OF SUBJECT MATTER

INV. A23L2/39 A23L2/40 A61K31/736 A23L2/52 A23L2/68
A23L29/244 A23L33/00 A61P3/00 A61P3/04 A61P3/06
A61P3/10 A23L19/00 A23L19/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A23L A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 1 799 410 A (ZHOU MI [CN]) 12 July 2006 (2006-07-12) paragraphs [0011], [0012], [0013], [0014], [0040]; claims 1-10 -----	1,3-5,8, 11-13
X	Anonymous: "Shape shots", , 28 May 2022 (2022-05-28), pages 1-4, XP093176436, www.foodspring.es Retrieved from the Internet: URL:https://web.archive.org/web/20220528011441/https://www.foodspring.es/shots-para-bajar-de-peso#product-ingredients [retrieved on 2024-06-19] the whole document ----- -/--	1-13

[x] Further documents are listed in the continuation of Box C.

[x] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
20 June 2024	28/06/2024

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Prieto Mota, Paula

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2024/052965

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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X	WO 2022/013120 A1 (NESTLE SA [CH]) 20 January 2022 (2022-01-20) paragraphs [0036], [0038]; claims 1-70 -----	1-10
X	DATABASE GNPD [Online] MINTEL; 17 February 2023 (2023-02-17), anonymous: "Artisan Fish Batter Mix", XP93176487, Database accession no. 10576668 the whole document -----	1,3,4,8
A	FARBSTEIN DAN ET AL: "HDL dysfunction in diabetes: causes and possible treatments", HHS, [Online] vol. 10, no. 3, 1 March 2012 (2012-03-01), pages 356-361, XP093087587, DOI: 10.1586/erc.11.182 Retrieved from the Internet: URL:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3332215/> page 5, line 1 - line 2 -----	13
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