

[DESCRIPTION]

[Title of Invention]

THICKENER, FUNCTIONALIZATION METHOD, THICKENING METHOD AND FOOD

[Technical Field]

[0001]

The present invention relates to a thickener, and especially to a thickener for liquid foods (including beverages, liquid seasonings and the like) that is used to facilitate chewing and swallowing of the liquid foods. The present invention also relates to a food that includes this thickener. The present invention further relates to a method for imparting functionality to a thickener.

[Background Art]

[0002]

A variety of thickeners for making thicken liquid food, which contains thickening polysaccharide compounds as active ingredients, have been proposed in the past in order to prevent mis-swallowing by patients who have difficulties with chewing and swallowing are difficult (for example, see Japanese Patent Application Publication No. 2011-254709, Japanese Patent Application Publication No. 2009-291176, Japanese Patent Application Publication No. 2008-263918, etc.). Such liquid food thickeners can modify a liquid food to the form of a gel or sol while suppressing adhesion (stickiness) in the oral cavity.

[Citation List]

[Patent Literature]

[0003]

[PTL 1] Japanese Patent Application Publication No. 2011-254709

[PTL 2] Japanese Patent Application Publication No. 2009-291176

[PTL 3] Japanese Patent Application Publication No. 2008-263918

[Summary of Invention]

[Technical Problem]

[0004]

In recent years, the "function of improving texture (hereinafter referred to as a "texture improvement function")" has become required of the liquid food thickeners mentioned above.

[0005]

The task addressed by the present invention is to provide a liquid food thickener which exhibits a texture improvement function in addition to a viscosity development function and an adhesion suppression function.

[Solution to Problem]

[0006]

A thickener according to a first aspect of the present invention includes xanthan gum and at least one type of excipient. That is, a first preferred aspect of the present invention is a thickener that includes xanthan gum and at least one type of excipient. In this case, the thickener may be one in which the mass ratio of the excipient relative to the xanthan gum falls within the range of 0.1 or more and less than 1.5. Furthermore,

this thickener may be one in which the viscosity falls within the range of 4,400 mPa·s or more and 4,600 mPa·s or less when the thickener is dissolved in ion exchanged water so that the concentration of the xanthan gum is 1 mass%. Moreover, this thickener may consist exclusively of xanthan gum and at least one type of excipient. In addition, the "excipient" mentioned here is an additive that is added to a solid preparation, such as a tablet, powder or granule, for reasons such as molding, bulking or diluting, and examples of the excipient include dextrin, lactose and crystalline cellulose. In addition, it is possible to use one of these excipients or two or more types thereof (a combination of two or more types thereof). That is, this excipient may be at least one of dextrin, lactose and crystalline cellulose. In addition, this thickener may be one in which the mass ratio of the excipient relative to the xanthan gum falls within the range of 0.1 or more and less than 1.5. Moreover, this thickener may be either in the form of a solid, such as a powder or granules, or in the form of a liquid, such as an aqueous solution.

[0007]

As a result of diligent research, the inventors of the present invention clarified that the thickener mentioned above not only exhibits a viscosity development function and an adhesion suppression function, but also imparts fresh palatability to liquid foods (including beverages, liquid seasonings and the

like). Therefore, this thickener not only achieves a viscosity development function and an adhesion suppression function, but can also achieve a texture improvement function by imparting such fresh palatability.

[0008]

In cases in which the thickener according to the first aspect mentioned above is a liquid obtained by dissolving the thickener in ion exchanged water so that the concentration of the xanthan gum is 1 mass%, or cases in which the thickener according to the first aspect mentioned above is dissolved in ion exchanged water so that the concentration of the xanthan gum is 1 mass%, the viscosity of the aqueous solution preferably falls within the range of 4,400 mPa·s or more and 4,600 mPa·s or less, and more preferably falls within the range of 4,450 mPa·s or more and 4,550 mPa·s or less. Moreover, the "viscosity" mentioned here is a measured value obtained by attaching a No. 3 rotor to a B type viscometer (manufactured by Toki Sangyo Co., Ltd.), setting the speed of rotor rotation to be 12 rpm, initiating rotation of the rotor, and keeping the rotor rotating for 30 seconds after initiating the rotation. If the viscosity of the aqueous thickener solution, which uses ion exchanged water as a solvent, falls within this range, thickness is moderate and an effect such as preventing mis-swallowing by patient who have difficulties with chewing and swallowing is achieved to a high degree.

[0009]

A thickener according to a second aspect of the present invention includes at least one type of thickening polysaccharide compound and at least one type of excipient. That is, a second preferred aspect of the present invention is a thickener that includes at least one type of thickening polysaccharide compound and at least one type of excipient. In this case, the thickener may be one in which the mass ratio of the excipient relative to the thickening polysaccharide compound falls within the range of 0.1 or more and less than 0.8. This thickening polysaccharide compound preferably contains xanthan gum as a primary component. In addition, this thickening polysaccharide compound may consist exclusively of xanthan gum. In addition, the thickener is one in which the mass ratio of the excipient relative to the thickening polysaccharide compound falls within the range of 0.1 or more and less than 0.8.

[0010]

As a result of diligent research, the inventors of the present invention clarified that the thickener mentioned above not only exhibits a viscosity development function and an adhesion suppression function, but also imparts fresh palatability to liquid foods (including beverages, liquid seasonings and the like). Therefore, this thickener not only achieves a viscosity development function and an adhesion suppression function, but can also achieve a texture improvement function by imparting such

fresh palatability.

[0011]

A method according to a third aspect of the present invention is a method of imparting a thickener with fresh palatability by using a thickening polysaccharide compound and an excipient. That is, a third preferred aspect of the present invention is a method of imparting a thickener with fresh palatability by using a thickening polysaccharide compound and an excipient.

[0012]

A method according to a fourth aspect of the present invention is a method in which a thickening polysaccharide compound and an excipient are used as components of a thickener in order to improve the fresh palatability of the thickener and/or suppress stickiness of the thickener. That is, a preferred fourth aspect of the present invention is a method in which a thickening polysaccharide compound and an excipient are used as components of a thickener in order to improve the fresh palatability of the thickener and/or suppress stickiness of the thickener.

[0013]

In a method for developing viscosity of a liquid food according to a fifth aspect of the present invention, a thickener mentioned above is mixed with a liquid food at a temperature that falls within the range of 3°C or higher and 80°C or lower. That

is, a preferred fifth aspect of the present invention is a liquid food thickening method in which a thickener mentioned above is mixed with a liquid food at a temperature that falls within the range of 3°C or higher and 80°C or lower.

[0014]

A food according to a sixth aspect of the present invention includes a thickener mentioned above. That is, a preferred sixth aspect of the present invention is a food that includes a thickener mentioned above. Moreover, this food may be in the form of a solid or in the form of a liquid. In cases where the food is in the form of a solid, the thickener exhibits the various functions mentioned above when the food becomes thickened food by adding a liquid to the food.

[0015]

In addition, in the food according to the sixth aspect mentioned above, the concentration of the xanthan gum or thickening polysaccharide compound falls within the range of 0.1 mass% or more and 10 mass% or less. In addition, the viscosity of this food, that is, the thickened food, preferably falls within the range of 500 mPa·s or more and 12,000 mPa·s or less.

[Description of Embodiments]

[0016]

<Constitution of thickener>

A thickener according to an embodiment of the present invention is a thickener that is in the form of, for example,

a powder, granules, a paste or a liquid, and contains at least one type of thickening polysaccharide compound and at least one type of excipient.

[0017]

The "thickening polysaccharide compound" mentioned here is, for example, xanthan gum, tara gum, glucomannan, carrageenan, guar gum, an enzymatically hydrolyzed guar gum, locust bean gum, pullulan, ghatti gum, cassia gum, psyllium seed gum, tamarind seed gum, gum arabic, rhamsan gum, welan gum, curdlan, furcellaran, macrophomopsis gum, native type gellan gum, gellan gum, karaya gum, gum tragacanth, ghatti gum, pectin, alginic acid, an alginic acid salt, an alginic acid ester, acetylated adipic acid-crosslinked starch, acetylated phosphoric acid-crosslinked starch, acetylated oxidized starch, sodium octenylsuccinate starch, starch acetate, oxidized starch, hydroxypropyl starch, hydroxypropylated phosphoric acid-crosslinked starch, phosphoric acid monoesterified phosphoric acid-crosslinked starch, phosphorylated starch, phosphoric acid-crosslinked starch, starch glycolic acid sodium salt, starch sodium phosphate, a soybean polysaccharide, fermented cellulose, carboxymethyl cellulose or a salt thereof, methyl cellulose, ethyl methyl cellulose, hydroxypropyl cellulose, chitin, chitosan, or the like, and does not include dextrin. Moreover, it is possible to use one of these thickening polysaccharide compounds or two or more types thereof (a combination of two or more types thereof).

That is, the present embodiment should use, as a thickening polysaccharide compound, at least one type of compound selected from among the group consisting of xanthan gum, tara gum, glucomannan, carrageenan, guar gum, an enzymatically hydrolyzed guar gum, locust bean gum, pullulan, ghatti gum, cassia gum, psyllium seed gum, tamarind seed gum, gum arabic, rhamsan gum, welan gum, curdlan, furcellaran, macrophomopsis gum, native type gellan gum, gellan gum, karaya gum, gum tragacanth, ghatti gum, pectin, alginic acid, an alginic acid salt, an alginic acid ester, acetylated adipic acid-crosslinked starch, acetylated phosphoric acid-crosslinked starch, acetylated oxidized starch, sodium octenylsuccinate starch, starch acetate, oxidized starch, hydroxypropyl starch, hydroxypropylated phosphoric acid-crosslinked starch, phosphoric acid monoesterified phosphoric acid-crosslinked starch, phosphorylated starch, phosphoric acid-crosslinked starch, starch glycolic acid sodium salt, starch sodium phosphate, a soybean polysaccharide, fermented cellulose, carboxymethyl cellulose or a salt thereof, methyl cellulose, ethyl methyl cellulose, hydroxypropyl cellulose, chitin and chitosan. Moreover, in the present embodiment, the thickening polysaccharide compound preferably contains xanthan gum as a primary component, and more preferably consists exclusively of xanthan gum. The "xanthan gum" mentioned here is a polysaccharide produced, for example, by a microorganism (*Xanthomonas campestris*).

[0018]

In addition, the "excipient" mentioned here is an additive that is added to a solid preparation, such as a tablet, powder or granule, for reasons such as molding, bulking or diluting, and examples of the excipient include dextrin, lactose and crystalline cellulose. Moreover, it is possible to use one of these excipients or two or more types thereof (a combination of two or more types thereof). That is, at least one type of compound selected from among the group consisting of dextrin, lactose and crystalline cellulose should be used as the excipient. Moreover, in the present embodiment, the excipient preferably contains dextrin as a primary component and more preferably consists exclusively of dextrin. Moreover, dextrin functions not only as an excipient, but also as a dissolution facilitating agent that facilitates dissolution of xanthan gum in water.

[0019]

In addition, the mass ratio of the excipient relative to the thickening polysaccharide compound falls within the range of 0.1 or more and less than 0.8 in this thickener. Moreover, this mass ratio preferably falls within the range of 0.1 or more and less than 0.7, more preferably falls within the range of 0.1 or more and less than 0.6, further preferably falls within the range of 0.1 or more and less than 0.5, particularly preferably falls within the range of 0.4 or more and less than 0.5, and most preferably falls within the range of 0.4 or more and less than

0.45.

[0020]

In cases where this thickening polysaccharide compound contains xanthan gum, the mass ratio of the excipient relative to the xanthan gum falls within the range of 0.1 or more and less than 1.5. Moreover, this mass ratio preferably falls within the range of 0.1 or more and less than 1.0, more preferably falls within the range of 0.1 or more and less than 0.8, further preferably falls within the range of 0.1 or more and less than 0.6, particularly preferably falls within the range of 0.4 or more and less than 0.5, and most preferably falls within the range of 0.4 or more and less than 0.45.

[0021]

In cases where the thickener according to the present embodiment is in the form of a powder or granules, the thickening polysaccharide compound is preferably contained at a quantity of 40 mass% or more, more preferably 50 mass% or more, and further preferably 60 mass% or more, relative to the overall quantity of the thickener. In addition, the excipient is preferably contained at a quantity of 20 mass% or more, more preferably 25 mass% or more, and further preferably 30 mass% or more, relative to the overall quantity of the thickener.

[0022]

The thickener according to the present embodiment may contain other components as long as the primary gist of the present

invention is not impaired. Here, examples of other components include emulsifying agents, such as sucrose fatty acid esters, glycerin fatty acid esters, polyglycerol fatty acid esters, organic acid monoglycerides and lecithin, agar, gelatin, amino acids and salts thereof, such as sodium L-aspartate, nucleic acids and salts thereof, such as disodium 5'-inosinate, potassium salts comprising potassium chloride, monopotassium citrate, tripotassium citrate, potassium hydrogen DL-tartrate, potassium hydrogen L-tartrate, potassium carbonate, tetrapotassium pyrophosphate, potassium polyphosphate, potassium meta-phosphate, tripotassium phosphate, dipotassium hydrogen phosphate, potassium dihydrogen phosphate, potassium sulfate, potassium hydrogen sulfite, potassium gluconate, potassium L-glutamate, potassium acetate, potassium bromide, potassium bromate, potassium nitrate, potassium sorbate and hydrates thereof, sodium salts comprising trisodium citrate, monosodium citrate, sodium DL-malate, sodium benzoate, sodium chloride, sodium gluconate, sodium L-glutamate, sodium acetate, sodium bromide, sodium bicarbonate, potassium sodium tartrate, sodium hydrogen tartrate, sodium DL-tartrate, sodium L-tartrate, sodium nitrate, sodium carbonate, sodium lactate, tetrasodium pyrophosphate, disodium dihydrogen pyrophosphate, sodium fumarate, sodium polyphosphate, sodium meta-phosphate, sodium hydrogen sulfite, sodium sulfate, disodium hydrogen phosphate, sodium dihydrogen phosphate, trisodium phosphate, disodium

5'-inosinate, disodium 5'-uridilate, disodium 5'-guanylate, disodium 5'-cytidylate, disodium 5'-ribonucleotide and hydrates thereof, calcium salts comprising calcium lactate, calcium chloride, calcium citrate, calcium gluconate, calcium L-glutamate, calcium acetate, calcium oxide, non-calcinated bone calcium, calcium hydroxide, calcium carbonate, calcium dihydrogen pyrophosphate, calcium sulfate, tricalcium phosphate, calcium monohydrogen phosphate, calcium dihydrogen phosphate, calcium 5'-ribonucleotide and hydrates thereof, magnesium salts comprising magnesium chloride, magnesium L-glutamate, magnesium oxide, magnesium carbonate, magnesium sulfate and hydrates thereof, storability improvement agents, such as mustard extracts, wasabi (Japanese horseradish) extracts and kojic acid, enzymes, such as α amylase, β amylase, α glucosidase, β glucosidase and papain, pH adjustment agents, such as citric acid, fumaric acid and succinic acid, sugars, such as sucrose, fructose, reduced starch saccharification products, dextrin, erythritol, xylitol and trehalose, sweeteners, such as sucralose, thaumatin, acesulfame potassium and aspartame, vitamins, such as vitamin A, vitamin C, vitamin E and vitamin K, minerals such as iron and calcium, perfumes, colorants, antioxidants and preservatives.

[0023]

<Method of use of thickener>

The method for adding the thickener according to the present embodiment to a liquid food, liquid medicinal product or liquid

cosmetic (including raw materials of these) (hereinafter referred to as "liquid product") is not particularly limited, but examples thereof include "a method of stirring and dispersing with a tool such as a spoon or spatula while adding the thickener little by little to the liquid product" and "a method of first mixing with a powdered food such as a powdered juice or powdered soup, and then pouring water or hot water and dispersing by stirring". Moreover, the quantity of thickener added to a liquid product depends on the type and physical properties of the liquid product, but preferably falls within the range of 0.1 mass% or more and 10 mass%, or less more preferably falls within the range of 0.2 mass% or more and 8 mass% or less, further preferably falls within the range of 0.3 mass% or more and 6 mass% or less, particularly preferably 0.4 mass% or more and 4 mass% or less, and most preferably 0.5 mass% or more and 2 mass% or less.

[0024]

In such cases, the viscosity of a food, medicinal product or cosmetic prepared from this liquid product (a thick product) preferably falls within the range of 500 mPa·s or more and 12,000 mPa·s or less. In addition, this viscosity more preferably falls within the range of 1,000 mPa·s or more and 10,000 mPa·s or less, further preferably falls within the range of 2,000 mPa·s or more and 8,000 mPa·s or less, and particularly preferably falls within the range of 4,000 Pa·s or more and 6,000 mPa·s or less.

[0025]

Moreover, examples of liquid foods include individual drinks, such as water, cows milk, milk-based drinks, lactic acid bacteria drinks, yoghurt drinks, fruit juice-containing soft drinks, fruit juice drinks, such as and orange juice, vegetable drinks, such as vegetable juices, tea drinks, coffee drinks, cocoa drinks, sports drinks, functional drinks, electrolyte drinks, vitamin supplement drinks, nutritional supplement drinks, sake (rice wine), beer, low-malt beer, beer-flavored alcoholic drinks, shochu (Japanese distilled spirits), whisky, brandy, spirits (rum, vodka, gin, tequila and the like), liqueurs and ethanol, cocktails containing drinkable alcohol, fruit wine, such as red wine, white wine and rose wine, which are obtained by fermenting fruit juice, soups, such as consommé type soups, potage type soups, cream type soups and Chinese soups, miso soup, clear soup, liquid processed foods, such as stews, curries and gratins, protein-adjusted foods, phosphorus-adjusted foods, potassium-adjusted foods, salt-adjusted foods, fat-adjusted foods, foods for controlling intestinal functions, calcium-enhanced foods, iron-enhanced foods, vitamin-enhanced foods, hypoallergenic foods, foods containing antimicrobial substances, special foods, such as liquid diets, blended foods and finely chopped foods, therapeutic foods, and liquid seasonings such as soy sauce, sauces, dips, dressings and syrups. Moreover, among these liquid foods, the use of water, oral

rehydration solutions, isotonic drinks (sports drinks), cows milk, milk-based drinks, lactic acid bacteria drinks, yoghurt drinks, fruit juice-containing soft drinks, fruit juice drinks, such as and orange juice, vegetable drinks, such as vegetable juices, green juices from barley leaves, etc., tea drinks (green tea, oolong tea or black tea, and especially green tea), coffee drinks, cocoa drinks, foods containing antimicrobial substances (especially bacteriocins) and liquid diets is preferred, the use of oral rehydration solutions, isotonic drinks (sports drinks), cows milk, milk-based drinks, lactic acid bacteria drinks, yoghurt drinks, fruit juice-containing soft drinks, tea drinks, coffee drinks, cocoa drinks, foods containing antimicrobial substances and liquid diets is more preferred, the use of lactic acid bacteria drinks, yoghurt drinks, fruit juice-containing soft drinks, tea drinks and liquid diets is further preferred, and the use of tea drinks, foods containing antimicrobial substances and liquid diets is particularly preferred from the perspective of being able to adequately utilize the function of the thickener according to the present embodiment.

[0026]

In addition, when using an addition method such as "a method of adding a thickener to a liquid product", it is preferable to mix the thickener with the liquid product at a temperature that falls within the range of 3°C or higher and 80°C or lower from the perspective of adequately achieving the function of the

thickener according to the present embodiment. Moreover, in such cases, the temperature of the liquid product more preferably falls within the range of 3°C or higher and 70°C or lower, further preferably falls within the range of 3°C or higher and 60°C or lower, particularly preferably falls within the range of 3°C or higher and 50°C or lower, and most preferably falls within the range of 3°C or higher and 40°C or lower.

[0027]

-Working Examples and Comparative Examples-

The present invention will now be explained in greater detail through the use of working examples and comparative examples, but should not be limited to these working examples.

[Working Example 1]

[0028]

A powdered thickener was prepared by mixing 10 g of xanthan gum and 4.3 g of dextrin (Sandeck #100, manufactured by Sanwa Starch Co., Ltd., corn starch raw material (DE value: 10-13)). Moreover, dextrin functions not only as an excipient, but also as a dissolution facilitating agent that facilitates dissolution of xanthan gum in water.

[0029]

(Comparative Example 1)

A powdered thickener was prepared in the same way as in Working Example 1, except that 23.3 g of dextrin was used instead

of 4.3 g of dextrin.

[0030]

(Comparative Example 2)

A powdered thickener was prepared in the same way as in Working Example 1, except that 4.3 g of dextrin was not used (10 g of xanthan gum was used as the thickener).

[0031]

<Evaluation of viscosity development characteristics>

(2-1) Evaluation of thickening function

Three types of aqueous thickener solution containing 1 mass% of xanthan gum were prepared by adding ion exchanged water to each of the powdered thickeners obtained in Working Example 1, Comparative Example 1 and Comparative Example 2 so as to obtain a total quantity of 1000 g. Moreover, it is obvious that the aqueous thickener solution according to Working Example 1 contains 0.43 mass% of dextrin, that the aqueous thickener solution according to Comparative Example 1 contains 2.33 mass% of dextrin and that the aqueous thickener solution according to Comparative Example 2 does not contain dextrin.

[0032]

In addition, the viscosity of each of these aqueous thickener solutions, which contain ion exchanged water as a solvent, was measured using a B type viscometer (manufactured by Toki Sangyo Co., Ltd.). Moreover, a No. 3 rotor was attached to the B type viscometer, and the speed of rotor rotation was

set to be 12 rpm. Here, numerical values were obtained after initiating rotation of the rotor and keeping the rotor rotating for 30 seconds after initiating the rotation. The results showed that the viscosity of the aqueous thickener solution according to Working Example 1 was 4500 mPa·s, that the viscosity of the aqueous thickener solution according to Comparative Example 1 was 4750 mPa·s, that the viscosity of the aqueous thickener solution according to Comparative Example 2 was 4640 mPa·s (see Table 1).

[Table 1]

	Working Example 1	Comparative Example 1	Comparative Example 2
Viscosity (mPa·s)	4500	4750	4640

[0033]

(2-2) Evaluation of adhesion suppression function and texture improvement function

In the same way as described in "(2-1) Evaluation of viscosity development function" above, three types of aqueous thickener solution containing 1 mass% of xanthan gum were prepared by adding ion exchanged water to each of the powdered thickeners obtained in Working Example 1, Comparative Example 1 and Comparative Example 2 so as to obtain a total quantity of 1000

g. In addition, comparative functional evaluations of adhesion suppression and texture improvement were carried out between the aqueous thickener solution according to Comparative Example 1 and the aqueous thickener solution according to Comparative Example 2 and between the aqueous thickener solution according to Working Example 1 and the aqueous thickener solution according to Comparative Example 1. Moreover, these functional evaluations were carried out by 5 expert panelists.

[0034]

Specifically, the aqueous thickener solution according to Comparative Example 1 was used as a standard product having an adhesion of "0", and the adhesion of the aqueous thickener solution according to Comparative Example 2 was evaluated by the 5 expert panelists using 7 incremental grades from -3 to 3. Moreover, a negative grade indicates high adhesion and a positive grade indicates low adhesion. The results show that the adhesion of the aqueous thickener solution according to Comparative Example 2 was evaluated as grade 1 by 3 expert panelists and as a grade 2 by 2 expert panelists. Moreover, the average evaluation grade of the 5 expert panelists was 1.4.

[0035]

Next, the aqueous thickener solution according to Comparative Example 1 was used as a standard product having an adhesion of "0", and the adhesion of the aqueous thickener solution according to Working Example 1 was evaluated by the 5

expert panelists using 7 incremental grades from -3 to 3, in the same way as described above. The results show that the adhesion of the aqueous thickener solution according to Working Example 1 was evaluated as grade 1 by 4 expert panelists and as a grade 2 by 1 expert panelist. Moreover, the average evaluation grade of the 5 expert panelists was 1.2.

[0036]

From these results, it is clear that the aqueous thickener solution according to Working Example 1 exhibits lower adhesion than the aqueous thickener solution according to Comparative Example 1. In addition, when the 5 expert panelists evaluated the texture of the aqueous thickener solutions, only the aqueous thickener solution according to Working Example 1 was evaluated as being fresh, smooth and palatable.

[Industrial Applicability]

[0037]

The thickener according to the present invention is characterized by not only achieving a viscosity development function and an adhesion suppression function, but also by achieving a texture improvement function by imparting fresh palatability, and can be added to liquid foods such as individual drinks, such as water, cows milk, milk-based drinks, lactic acid bacteria drinks, yoghurt drinks, fruit juice-containing soft drinks, fruit juice drinks, such as and orange juice, vegetable drinks, such as vegetable juices, tea drinks, coffee drinks, cocoa

drinks, sports drinks, functional drinks, electrolyte drinks, vitamin supplement drinks, nutritional supplement drinks, sake (rice wine), beer, low-malt beer, beer-flavored alcoholic drinks, shochu (Japanese distilled spirits), whisky, brandy, spirits (rum, vodka, gin, tequila and the like), liqueurs and ethanol, cocktails containing drinkable alcohol, fruit wine, such as red wine, white wine and rose wine, which are obtained by fermenting fruit juice, soups, such as consommé type soups, potage type soups, cream type soups and Chinese soups, miso soup, clear soup, liquid processed foods, such as stews, curries and gratins, protein-adjusted foods, phosphorus-adjusted foods, potassium-adjusted foods, salt-adjusted foods, fat-adjusted foods, foods for controlling intestinal functions, calcium-enhanced foods, iron-enhanced foods, vitamin-enhanced foods, hypoallergenic foods, foods containing antimicrobial substances, special foods, such as liquid diets, blended foods and finely chopped foods, therapeutic foods, and liquid seasonings such as soy sauce, sauces, dips, dressings and syrups.

[CLAIMS]

[Claim 1]

A thickener comprising:

xanthan gum; and

at least one type of excipient,

wherein the mass ratio of the excipient relative to the xanthan gum falls within the range of 0.1 or more and 0.5 or less;

wherein the viscosity falls within the range of 4,400 mPa·s or more and 4,600 mPa·s or less when the thickener is dissolved in ion exchanged water so that the concentration of the xanthan gum is 1 mass%, wherein the viscosity is a measured value obtained by attaching a rotor to a viscometer, setting the speed of rotor rotation to be 12 rpm, initiating rotation of the rotor, and keeping the rotor rotating for 30 seconds after initiating the rotation.

[Claim 2]

A thickener comprising:

at least one type of thickening polysaccharide compound;

and

at least one type of excipient,

wherein the mass ratio of the excipient relative to the thickening polysaccharide compound falls within the range of 0.1 or more and less than 0.5;

wherein the viscosity falls within the range of 4,400 mPa·s or more and 4,600 mPa·s or less when the thickener is dissolved in ion exchanged water so that the concentration of the thickening polysaccharide compound is 1 mass%, wherein the viscosity is a measured value obtained by attaching a rotor to a viscometer, setting the speed of rotor rotation to be 12 rpm, initiating rotation of the rotor, and keeping the rotor rotating for 30 seconds after initiating the rotation.

[Claim 3]

The thickener according to claim 1 or 2, wherein the excipient contains dextrin.

[Claim 4]

A method for imparting a thickener with fresh palatability, the method comprising:

mixing xanthan gum and dextrin to obtain a thickener; and

wherein the mass ratio of the dextrin relative to the xanthan gum is within the range of 0.1 or more and 0.5 or less.

[Claim 5]

A method wherein a thickening polysaccharide compound and an excipient are used as components of a thickener in order to improve fresh palatability of the thickener and/or suppress

stickiness of the thickener,

wherein the thickening polysaccharide compound is xanthan gum and the excipient is dextrin; and

wherein the mass ratio of the dextrin relative to the xanthan gum is within the range of 0.1 or more and 0.5 or less.

[Claim 6]

The method according to claim 4 or 5, wherein

the thickener has a viscosity in the range of 4,400 mPa·s or more and 4,600 mPa·s or less, wherein the viscosity is a measured value obtained by attaching a rotor to a viscometer, setting the speed of rotor rotation to be 12 rpm, initiating rotation of the rotor, and keeping the rotor rotating for 30 seconds after initiating the rotation.

[Claim 7]

A method for developing viscosity of a liquid food by mixing the thickener according to any one of claims 1 to 3 with a liquid food at a temperature that falls within the range of 3°C or higher and 80°C and lower.

[Claim 8]

A food that comprises the thickener according to any one of claims 1 to 3.

[Claim 9]

The food according to claim 8, wherein the concentration of the xanthan gum or thickening polysaccharide compound falls within the range of 0.1 mass% or more and 10 mass% or less.