

That is, in the conventional production method of the liquid fermented milks, it is considered to be difficult to commercially realize a liquid fermented milk having flavor and texture that achieve both of rich feeling and good aftertaste. On the other hand, unlike the conventional liquid fermented milk, when a liquid fermented milk having flavor and texture that achieve both of rich feeling and good aftertaste is commercially realized, an improvement in palatability can be expected.

[0014]

In the present invention, an object is to provide a liquid fermented milk (drink yogurt or the like) having flavor and texture that achieve both of rich feeling and good aftertaste (for which rich feeling and good aftertaste are simultaneously felt).

Summary

[0014a]

In one aspect, there is provided a liquid fermented milk having a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein a concentration of the milk fats in the liquid fermented milk is, relative to the whole of the liquid fermented milk, 8% by weight or less, and a concentration of the nonfat milk solids in the raw material milk is, relative to the whole of the raw material milk, is 18% by weight or less.

[0014b]

In another aspect, there is provided a liquid fermented milk having a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein the viscosity expressed as a unit of mPa.s measured at a temperature of 10°C is 20 times or more than the average particle size expressed as a unit of μm.

[0014c]

In another aspect, there is provided a liquid fermented milk having a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein, in case where a relationship between shear stress and a shear rate at arbitrary three or more measurement points in the range of 1 to 1,000 s⁻¹ of the shear rate is expressed by a numerical expression: $P = \mu D^n$, the value of n is 0.1 to 0.47, where P means shear stress [Pa], D means shear rate [s⁻¹], μ means a non-Newtonian viscosity coefficient, and n means a non-Newtonian viscosity index.

[0014d]

In another aspect, there is provided a method for producing a liquid fermented milk, comprising: blending a cation-reactive stabilizer into a raw material milk; adding lactic acid bacteria thereto and performing fermentation until the pH reaches 3 to 5; and subsequently conducting liquefaction thereof so as to be a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein a concentration of the milk fats in the liquid fermented milk is, relative to the whole of the liquid fermented milk, 8% by weight or less, and a concentration of the nonfat milk solids in the raw material milk is, relative to the whole of the raw material milk, is 18% by weight or less.

[0014e]

In another aspect, there is provided a method for producing a liquid fermented milk, comprising: blending a cation-reactive stabilizer into a raw material milk; adding lactic acid bacteria thereto and performing fermentation until the pH reaches 3 to 5; and subsequently conducting liquefaction thereof so as to be a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein the viscosity expressed as a unit of mPa.s measured at a temperature of 10°C is 20 times or more than the average particle size expressed as a unit of μm .

[0014f]

A method for producing a liquid fermented milk, comprising: blending a cation-reactive stabilizer into a raw material milk; adding lactic acid bacteria thereto and performing fermentation until the pH reaches 3 to 5; and subsequently conducting liquefaction thereof so as to be a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein, in case where a relationship between shear stress and a shear rate at arbitrary three or more measurement points in the range of 1 to 1,000 s^{-1} of the shear rate is expressed by a numerical expression: $P=\mu D^n$, the value of n is 0.1 to 0.47, where P means shear stress [Pa], D means shear rate [s^{-1}], μ means a non-Newtonian viscosity coefficient, and n means a non-Newtonian viscosity index.

Means for Solving the Problems

[0015]

As a result of extensive studies for solving the above problems, the present inventors have found that a liquid fermented milk having flavor and texture that achieve both of rich feeling and good aftertaste can be provided when it is a liquid fermented milk having a predetermined viscosity and a predetermined average particle size. Thus, they have accomplished the present invention.

[0016]

In addition, they have found that a liquid fermented milk obtained by blending (adding) a cation-reactive stabilizer into a raw material milk, adding (inoculating) lactic acid bacteria thereto and performing fermentation until pH reaches 3 to 5, and subsequently conducting liquefaction so as to be a viscosity of 200 to 800 mPa.s (measurement temperature: 10°C) and an average particle size of 20 μ m or less has flavor and texture that achieve both of rich feeling and good aftertaste.

Furthermore, when the liquid fermented milk is stored under refrigeration (10°C, 14 days), syneresis and precipitation have not been observed.

[0017]

Namely, the present invention is constituted by the following [1] to [13].

[1] A liquid fermented milk having a viscosity of 200 to 800 mPa.s (measurement temperature: 10°C) and an average particle size of 20 μ m or less.

[2] The liquid fermented milk according to the above [1], which comprises a cation-reactive stabilizer.

CLAIMS

[Claim 1]

A liquid fermented milk having a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein a concentration of the milk fats in the liquid fermented milk is, relative to the whole of the liquid fermented milk, 8% by weight or less, and a concentration of the nonfat milk solids in the raw material milk is, relative to the whole of the raw material milk, is 18% by weight or less.

[Claim 2]

A liquid fermented milk having a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein the viscosity expressed as a unit of mPa.s measured at a temperature of 10°C is 20 times or more than the average particle size expressed as a unit of μm .

[Claim 3]

A liquid fermented milk having a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein,

in case where a relationship between shear stress and a shear rate at arbitrary three or more measurement points in the range of 1 to 1,000 s^{-1} of the shear rate is expressed by a numerical expression: $P=\mu D^n$, the value of n is 0.1 to 0.47, where P means shear stress [Pa], D means shear rate [s^{-1}], μ means a non-Newtonian viscosity coefficient, and n means a non-Newtonian viscosity index.

[Claim 4]

The liquid fermented milk according to any one of claims 1 to 3, which comprises a cation-reactive stabilizer.

[Claim 5]

The liquid fermented milk according to claim 4, which comprises 0.05 to 0.5% by weight of the cation-reactive stabilizer.

[Claim 6]

The liquid fermented milk according to claim 4 or 5, wherein the cation-reactive stabilizer is one kind alone or a combination of two or more kinds of κ -carrageenan, ι -carrageenan, deacylation gellan gum, an alginate, and a low methoxyl pectin, abbreviated as LM pectin.

[Claim 7]

The liquid fermented milk according to any one of claims 1 to 6, wherein syneresis and precipitation are not observed after 14 days of storage at 10°C from the time immediately after production.

[Claim 8]

A method for producing a liquid fermented milk, comprising: blending a cation-reactive stabilizer into a raw material milk; adding lactic acid bacteria thereto and performing fermentation until the pH reaches 3 to 5; and subsequently conducting liquefaction thereof so as to be a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein a concentration of the milk fats in the liquid fermented milk is, relative to the whole of the liquid fermented milk, 8% by weight or less, and a concentration of the nonfat milk solids in the raw material milk is, relative to the whole of the raw material milk, is 18% by weight or less.

[Claim 9]

A method for producing a liquid fermented milk, comprising: blending a cation-reactive stabilizer into a raw material milk; adding lactic acid bacteria thereto and performing fermentation until the pH reaches 3 to 5; and subsequently conducting liquefaction thereof so as to be a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein the viscosity expressed as a unit of mPa.s measured at a temperature of 10°C is 20 times or more than the average particle size expressed as a unit of μm .

[Claim 10]

A method for producing a liquid fermented milk, comprising: blending a cation-reactive stabilizer into a raw material milk; adding lactic acid bacteria thereto and performing fermentation until the pH reaches 3 to 5; and subsequently conducting liquefaction thereof so as to be a viscosity of 200 to 800 mPa.s measured at a temperature of 10°C and an average particle size of 20 μm or less, wherein,

in case where a relationship between shear stress and a shear rate at arbitrary three or more measurement points in the range of 1 to 1,000 s^{-1} of the shear rate is expressed by a numerical expression: $P=\mu D^n$, the value of n is 0.1 to 0.47, where P means shear stress [Pa], D means shear rate [s^{-1}], μ means a non-Newtonian viscosity coefficient, and n means a non-Newtonian viscosity index.

[Claim 11]

The method for producing a liquid fermented milk according to any one of claims 8 to 10, wherein 0.05 to 0.5% by weight of the cation-reactive stabilizer is blended.

[Claim 12]

The method for producing a liquid fermented milk according to any one of claims 8 to 11, wherein the cation-reactive stabilizer is one kind alone or a combination of two or more kinds of κ -carrageenan, ι -carrageenan, deacylation gellan gum, an alginate, and a low methoxyl pectin, abbreviated as LM pectin.

[Claim 13]

The method for producing a liquid fermented milk according to any one of claims 8 to 12, wherein the liquefaction is conducted using a super mixer.