

## Description

Title of Invention: SWEETENER-CONTAINING LIQUID FERMENTED MILK AND METHOD FOR PRODUCING SAME

### Technical Field

[0001] The present invention relates to a sweetener-containing liquid fermented milk and a method of producing the sweetener-containing liquid fermented milk.

### Background Art

[0002] Liquid fermented milk is a beverage typically exemplified by a drinkable yogurt and a lactic acid bacteria beverage (i.e. a lactic fermenting beverage). Liquid fermented milk has a pleasant fresh sour taste derived from lactic acid, a pleasant sweet taste derived from a sweetener, and a rich taste derived from a milk constituent in a well-balanced fashion of these tastes. Therefore, liquid fermented milk is very popular among consumers including children and adults. Moreover, since liquid fermented milk has a healthful image associated with yogurt or lactic acid bacteria, liquid fermented milk is popular among not only consumers seeking high palatability but also health-conscious consumers.

[0003] Drinking a liquid fermented milk stored in a refrigerator or the like directly is widely known as one of the drinking forms of liquid fermented milk.

Specifically, there are widely known such drinking forms as

follows: a drinking form of drinking a liquid fermented milk after taking the liquid fermented milk out of a home refrigerator; and a drinking form of drinking a liquid fermented milk immediately after buying the liquid fermented milk in a cooled condition at a convenience store or an automatic vending machine, or at home immediately after carrying the bought fermented milk to home.

Moreover, in a single-person household, such a life pattern as having no or only a small-capacity home refrigerator and buying a beverage to be needed in a needed amount at a convenience store or an automatic vending machine has become established. Furthermore, there are widely observed such drinking forms as drinking a liquid fermented milk while walking, or drinking a liquid fermented milk little by little at work or during break time, because liquid fermented milk is one of discretionary drinks (i.e. favorite drinks of many people).

[0004] Thus far, in designing liquid fermented milk products, it is common practice for those skilled in the art to design flavor such as sweet taste and sour taste on the assumption that, for example, in the case of a product to be refrigerated which needs to be stored at 10°C or less, the product will enter consumers' mouths at a liquid temperature of 10°C or less.

However, it is often the case that a liquid fermented milk is placed under an ordinary temperature while being drunk by a person and in the meanwhile, its liquid temperature increases. For example, in the case of a liquid fermented milk to be kept refrigerated at

10°C or less, when the liquid fermented milk is taken out of the refrigerated condition and put at a place having a high temperature (for example, in a room kept warm) for a long time, the liquid temperature of the liquid fermented milk increases gradually up to the temperature of the place.

[0005] It has been known that the rise in the liquid temperature of a beverage changes the sensitivity (i.e. the threshold value) of a human tongue to sweet taste or bitter taste. For example, the after-mentioned Non-Patent Literature 1 discloses that the threshold value for sweet taste is the lowest at around 30°C. That is, the same liquid fermented milk is perceived with different sensitivity to sweet taste, depending on whether the milk is one refrigerated at 10°C or less, or one placed at around ordinary temperature (i.e. room temperature) (for example, 20°C to 30°C). In the case of conventional liquid fermented milks, the balance among sourness, sweetness, and the like is good at a low temperature (about 10°C); however, at ordinary temperature (for example, about 20°C) or at a temperature higher than ordinary temperature (for example, 20 to 40°C), the balance of sweetness, sourness and the like tends to be worse than that at a low temperature.

[0006] On the other hand, there have been proposed a fermented milk which contains a high intensity sweetener.

As an example of such a fermented milk, there has been proposed a lactic acid fermented food having a sweet taste elicited by a sweetener, in which the sweetener contains at least aspartame, and lactic acid bacteria remaining in the lactic acid fermented food

contain mainly the bacteria which belong to lactic acid bacteria group A (i.e. a group including *Streptococcus thermophilus* and the like) and does not contain the bacteria which belong to lactic acid bacteria group B (i.e. a group including *Lactobacillus bulgaricus* and the like) (see Patent Literature 1).

As another example of such a fermented milk, there has been proposed a method of producing yogurt, comprising a step of conducting fermentation under the presence of one kind or at least two kinds of high intensity sweeteners selected from sucralose, acesulfame potassium, and neotame (see Patent Literature 2).

#### Citation List

##### Patent Literatures

- [0007] [Patent Literature 1] JP H02-97351 A  
[Patent Literature 2] JP 2008-136490 A

##### Non-Patent Literatures

- [0008] [Non-Patent Literature 1] Nihon University Dental Journal vol. 80, pp. 175-181, (2006)

#### Summary of the Invention

##### Problems to be Solved by the Invention

[0009] The majority of liquid fermented milks on sale at present belongs to liquid fermented milk containing viable lactic acid bacteria (i.e. viable cell type liquid fermented milk). The viable cell type liquid fermented milk is not designed on the assumption that it is drunk in a heated (i.e. warm) condition.

Meanwhile, some consumers avoid drinking a liquid fermented milk in the cold of winter or the like, because a cold liquid fermented milk strongly stimulates the digestive system in a human body and may cause diarrhea or the like.

However, there has not been known "a palatable (i.e. delicious) liquid fermented milk even in a warm condition" that can be drunk by such consumers. If a liquid fermented milk having a good balance of sourness, sweetness, and the like even when its liquid temperature increases up to ordinary temperature or higher is developed, the demand for liquid fermented milk will increase.

Thus, an object of the present invention is to provide a sweetener-containing liquid fermented milk which can maintain a good balance among sweetness, sourness, and the like in a wide liquid temperature range from a temperature of 10°C or less (for example, 0°C) to a temperature exceeding ordinary temperature (for example, 80°C).

#### Means for Solving the Problem

[0010] As a result of diligent study aiming at solving the above problems, the present inventors perfected the present invention upon discovering the fact that a liquid fermented milk containing a high intensity sweetener can maintain a good balance among sweetness, sourness, and the like in a wide liquid temperature range from a temperature of 10°C or less (for example, 0°C) to a temperature exceeding ordinary (i.e. room) temperature (for example,

80°C).

[0011] That is, the present invention provides the following items [1] to [6].

[1] A sweetener-containing liquid fermented milk to be taken at a liquid temperature of 20°C or higher, containing a high intensity sweetener.

[2] The sweetener-containing liquid fermented milk according to the above-mentioned item [1], which is to be taken at a liquid temperature of 50°C or higher.

[3] The sweetener-containing liquid fermented milk according to the above-mentioned item [1] or [2], which maintains a constant level of balance of sweetness and sourness in a liquid temperature range from 0 to 80°C.

[4] The sweetener-containing liquid fermented milk according to any one of the above-mentioned items [1] to [3], in which the high intensity sweetener is at least one kind selected from the group consisting of sucralose, aspartame, acesulfame potassium, and neotame.

[5] The sweetener-containing liquid fermented milk according to any one of the above-mentioned items [1] to [4], containing *Lactobacillus bulgaricus* and *Streptococcus thermophilus* as lactic acid bacteria.

[6] A method of producing the sweetener-containing liquid fermented milk according to any one of the above-mentioned items [1] to [5], including: a fermentation step of adding a lactic acid bacteria starter to a raw material of a fermented milk and carrying out

fermentation to obtain a curd of the fermented milk; a curd pulverization (i.e. crushing) step of pulverizing the curd to obtain a liquid fermented milk; and a sweetener adding step of mixing the liquid fermented milk and a high intensity sweetener to obtain the sweetener-containing liquid fermented milk.

#### Advantageous Effects of the Invention

[0012] The sweetener-containing liquid fermented milk of the present invention maintains a good balance of sweetness, sourness, and the like over a wide liquid temperature range from a temperature of 10°C or less (for example, 0°C) to a temperature exceeding ordinary temperature (for example, 80°C).

Therefore, the sweetener-containing liquid fermented milk of the present invention is suitable for drink at any time, such as a time immediately after refrigerated storage at 10°C or less; a time when the liquid fermented milk is taken out of a refrigerated condition and put (i.e. left) in a room or the like for a long time to reach around ordinary temperature of about 20 to 30°C; a time when the liquid fermented milk is heated by a microwave oven, hot water, or the like to reach a temperature of, for example, 40 to 80°C; or the like.

#### Embodiments for Carrying Out the Invention

[0013] A sweetener-containing liquid fermented milk of the present invention contains a high intensity sweetener.

In the present description, "fermented milk" means one

obtained by adding lactic acid bacteria and optional components such as water to a raw material derived from milk such as raw milk, skimmilk, milkpowder, skimmilkpowder, whey, wheypowder, condensed whole milk, condensed skimmilk, condensed milk, cream, or the like, and carrying out fermentation. "Fermented milk" includes one containing 8% by weight or more of solid non-fat (narrowly-defined fermented milk) and one containing less than 8% by weight of solid non-fat. Examples of milk which is a supply source of the raw material derived from milk include animal milks such as cow's milk, sheep's milk, and goat's milk.

Examples of liquid fermented milk include a lactic acid bacteria beverage (i.e. a lactic fermenting beverage), which has a content of solid non-fat (i.e. solids-not-fat) of less than 3% by weight, classified as "a lactic fermenting beverage containing milk and the like as a main raw material"; a lactic acid bacteria beverage, which has a content of solid non-fat of 3% by weight or more and 8% by weight or less, classified as "a dairy product lactic fermenting beverage"; and a drinkable yogurt which has a content of solid non-fat of 8% by weight or more.

Examples of high intensity sweetener include sucralose, aspartame, acesulfame potassium, and neotame. These high intensity sweeteners can be used alone or in combination of two or more kinds.

[0014] The blending amount (i.e. content) of the high intensity sweetener in the sweetener-containing liquid fermented milk of the present invention is not particularly limited, but is preferably as follows.

The content of the high intensity sweetener in the sweetener-containing liquid fermented milk of the present invention (which means, in the case of using two or more high intensity sweeteners, the total content) is less than 0.030% by weight, preferably 0.025% by weight or less, more preferably 0.020% by weight or less, especially preferably 0.015% by weight or less from the view point of the balance of sweetness and sourness at a liquid temperature of ordinary temperature or higher.

The lower limit of the content of the high intensity sweetener is preferably 0.001% by weight, more preferably 0.005% by weight, still more preferably 0.008% by weight, especially preferably 0.010% by weight from the view point of giving appropriate sweetness.

[0015] The sweetener-containing liquid fermented milk of the present invention contains one kind or at least two kinds of lactic acid bacteria selected from *Lactobacillus bulgaricus*, *Lactobacillus lactis*, *Lactobacillus helveticus*, and *Lactobacillus acidophilus* (the above bacterial strains belong to rod-shaped lactic acid bacteria); *Streptococcus thermophilus* (the above bacterial strain belongs to coccus-shaped lactic acid bacteria); and the like.

Of these, a combination of *Lactobacillus bulgaricus* and *Streptococcus thermophilus* is preferred for the following reasons. One reason is that this combination gives distinctive richness and freshness to the sweetener-containing liquid fermented milk of the present invention to make consumers to have high preference. Another reason is that yogurt produced by using this combination is approved as "yogurt" in the international standards. A third

reason is that the effect of the present invention of maintaining a good balance of sweetness, sourness, and the like can be sufficiently obtained regardless of the value (high or low) of the liquid temperature.

In the present invention, it is not necessary to use a mutant strain having a specific property as lactic acid bacteria, and a bacterial strain for general use may be used.

[0016] The sweetener-containing liquid fermented milk of the present invention may be drunk immediately after being taken out of a refrigerated condition (for example, immediately after purchase at a store, immediately after being taken out of a refrigerator, or the like) as in the past, or may be drunk at a liquid temperature of ordinary temperature or higher. Especially, in consideration of the effect of the present invention of maintaining a good balance of sweetness, sourness, and the like regardless of the liquid temperature, which is not attainable in the conventional art, the liquid temperature of the sweetener-containing liquid fermented milk of the present invention when it is drunk (i.e. served) is preferably 20°C or more, more preferably 25°C or more, still more preferably 30°C or more, still more preferably 40°C or more, especially preferably 50°C or more.

The upper limit of the liquid temperature is not particularly limited, but is preferably 80°C, more preferably 70°C, still more preferably 65°C, especially preferably 60°C in view of drinkability (i.e. drinking ease).

The sweetener-containing liquid fermented milk of the present

invention maintains a constant level of balance of sweetness and sourness regardless of the value (high or low) of the liquid temperature.

The range of liquid temperature in which the balance between sweetness and sourness is maintained at a constant level is preferably 0 to 80°C, more preferably 0 to 70°C, still more preferably 5 to 65°C, still more preferably 5 to 60°C, especially preferably 10 to 60°C.

Needless to say, it is preferred from the viewpoint of health and hygiene that a liquid fermented milk having a high liquid temperature should be drunk in the way that prevents consumers from suffering from burns, such as drinking little by little, because there may be some consumers that suffer from burns of their insides of their mouths, tongues, or the like when the liquid temperature is high.

[0017] Next, a method of producing the sweetener-containing liquid fermented milk of the present invention will be explained as described below.

A method of producing the sweetener-containing liquid fermented milk of the present invention includes a fermentation step of adding a lactic acid bacteria starter to a raw material of a fermented milk and carrying out fermentation to obtain a curd of the fermented milk; a curd pulverization step of pulverizing the curd to obtain a liquid fermented milk; and a sweetener adding step of mixing the liquid fermented milk with a high intensity sweetener to obtain the sweetener-containing liquid fermented milk.

Hereinafter, a detailed description will be given of each step.

[0018]           [Fermentation step]

This step is a step of adding a lactic acid bacteria starter to a raw material of a fermented milk and carrying out fermentation to obtain a curd of the fermented milk.

The raw material of a fermented milk includes a raw material derived from milk as listed above and other raw materials such as water that are blended as needed.

The type of the raw material other than the milk-derived raw material is not particularly limited, and overall foods and food additives including sugars, sweeteners, and flavors can be exemplified.

[0019]           It is desired that the raw material of a fermented milk is pasteurized by heating before the addition of a lactic acid bacteria starter. As the heating temperature and heating time in this case, any heating temperature and heating time generally used for milk or liquid dairy products can be employed in view of the efficiency of pasteurization or the like. For example, low-temperature pasteurization including heating under a typical condition of 60 to 80°C for 30 minutes or more, high-temperature short-time pasteurization (i.e., HTST pasteurization) including heating under a typical condition of 80 to 120°C for 15 seconds or more, ultra high-temperature pasteurization (i.e. UHT pasteurization) including heating under a typical condition of 120°C or more for 2 seconds or more, or the like can be employed. Moreover,

any of known heat pasteurization methods can be employed.

As a lactic acid bacteria starter, one containing one or more kinds of lactic acid bacteria is used as mentioned above. Of these starters, a lactic acid bacteria starter containing *Lactobacillus bulgaricus* and *Streptococcus thermophilus* is preferred.

[0020] The end of fermentation is a time point when the acidity expressed as lactic acid reaches, for example, 1.00 to 1.40. In this case, the fermentation time is generally 3 to 20 hours. It is to be noted that the preferred range of the acidity expressed as lactic acid changes depending on the composition of the raw material of a fermented milk or the like.

In the present description, "acidity expressed as lactic acid" means a value measured by "5. Method for measuring acidity of milk and dairy products" described on page 56 in "Laws and Ordinances Regarding Milk" (Association of Dairy Companies for Hygiene, which is "Nyugyo Dantai Eisei Renraku Kyogikai" in Japanese; March 2004). The details of this method are as follows.

10 ml of water free from carbon dioxide is added to 10 ml of a sample to dilute the sample, and 0.5 ml of a phenolphthalein solution is added to the diluted sample as an indicator. The resultant is titrated with a 0.1 mol/L sodium hydroxide solution until the faint pink color persists for 30 seconds without disappearing. Based on the titration amount, the amount (expressed as percentage) of lactic acid per 100 g of the sample is determined and used as the value of acidity expressed as lactic acid. 1 ml of the 0.1 mol/L sodium hydroxide solution corresponds to 9 mg of

lactic acid. The indicator is prepared by dissolving 1 g of phenolphthalein in a 50% ethanol solution and adjusting the volume to 100 ml.

The fermentation temperature is preferably 35 to 48°C, more preferably 37 to 46°C, especially preferably 39 to 44°C in view of the efficiency of fermentation or the like.

The fermentation generally ends with cooling. The cooling temperature is preferably 10°C or less.

[0021] [Curd pulverization step]

This step is a step of pulverizing (i.e. crushing or smashing) the curd of the fermented milk obtained in the fermentation step, to obtain a liquid fermented milk.

The pulverization of the curd can be carried out by, for example, homogenization treatment.

An example of the homogenization treatment includes pressurization at 7 to 13 MPa as the first homogenization treatment and pressurization at 4 to 6 MPa as the second homogenization treatment in this order.

The pulverization of the curd allows the hard type (i.e. firm) fermented milk obtained in the fermentation step to be finely pulverized, thus obtaining a liquid fermented milk.

[0022] [Sweetener adding step]

This step is a step of mixing the liquid fermented milk obtained in the curd pulverization step and a high intensity sweetener to obtain the sweetener-containing liquid fermented milk.

As mentioned above, examples of the high intensity sweetener

include sucralose, aspartame, acesulfame potassium, and neotame.

In this step, in addition to the high intensity sweetener, foods or food additives such as thickening agents (for example, thickening polysaccharides such as pectin), sugars, glucose, flavors, fruit juice, vitamins, and minerals may be blended with no limitation on the type and blending amount thereof.

#### Examples

[0023] Hereinafter, the present invention will be described in more detail by way of Examples. However, it is to be noted that the present invention is not limited to those Examples.

#### [Example 1]

723 g of skim milk powder and 4,177 g of tap water were mixed to prepare a raw material (i.e. yogurt mix) of a fermented milk. This yogurt mix was pasteurized by heating at 95°C for 10 minutes and then cooled to 45°C. Next, 100 g of a mixed starter of *Lactobacillus bulgaricus* and *Streptococcus thermophilus* each isolated from "Meiji Bulgaria Yogurt" (trade name; manufactured by Meiji Co., Ltd.) was inoculated in the yogurt mix. The resultant yogurt mix was subjected to fermentation in a tank at 43°C. When the acidity expressed as lactic acid reached 1.20%, the resultant was cooled to 10°C or less, thus obtaining a curd of a fermented milk.

[0024] The obtained curd of a fermented milk was homogenized at 15 MPa (specifically, at 10 MPa in the first pressurization and 5 MPa in the second pressurization) by using a homogenizer with

a processing capacity of about 190 L (liter)/hour (manufactured by SANWA ENGINEERING Ltd.) to yield a liquid fermented milk. Next, the resultant liquid fermented milk and a sugar solution (specifically, an aqueous solution containing 0.03% by weight of sucralose and 0.6% by weight of pectin) were mixed at a weight ratio of 6:4, thus obtaining a sweetener-containing liquid fermented milk (i.e. drinkable yogurt) as a final product.

This drinkable yogurt had a pronounced sweet taste and achieved a good balance of sweetness and sourness when the liquid temperature of the drinkable yogurt was 10°C or less (specifically, about 5°C). Moreover, when the liquid temperature was raised to 25°C by putting the drinkable yogurt in a room, the drinkable yogurt achieved the same level of balance between sweetness and sourness as that in the case where the liquid temperature was 10°C or less. Furthermore, even when the liquid temperature was raised to 60°C, the drinkable yogurt achieved the same level of balance of sweetness and sourness as that in the case where the liquid temperature was 10°C or less.

As mentioned above, in a liquid temperature range from 5 to 60°C, the drinkable yogurt of Example 1 had a constant balance of sweetness and sourness, and was always flavorful.

[0025]            [Example 2]

A drinkable yogurt was produced by the same process as that in Example 1 except that an aqueous solution containing 0.03% by weight of aspartame and 0.6% by weight of pectin was used instead of the aqueous solution containing 0.03% by weight of sucralose and 0.6% by weight of pectin.

Sensory evaluation was performed on the obtained drinkable yogurt of Example 2 by the same manner as that in Example 1, and the same result as that in Example 1 was obtained.

[Example 3]

A drinkable yogurt was produced by the same process as that in Example 1 except that an aqueous solution containing 0.03% by weight of acesulfame potassium and 0.6% by weight of pectin was used instead of the aqueous solution containing 0.03% by weight of sucralose and 0.6% by weight of pectin.

Sensory evaluation was performed on the obtained drinkable yogurt of Example 3 by the same manner as that in Example 1, and the same result as that in Example 1 was obtained.

[0026]            [Comparative Example 1]

A drinkable yogurt was produced by the same process as that in Example 1 except that an aqueous solution containing 16.3% by weight of sugar and 0.6% by weight of pectin was used instead of the aqueous solution containing 0.03% by weight of sucralose and 0.6% by weight of pectin.

Sensory evaluation was performed on the obtained drinkable yogurt by the same manner as that in Example 1, and the following result was obtained.

The obtained drinkable yogurt had a pronounced sweet taste and achieved a good balance of sweetness and sourness when the liquid temperature of the drinkable yogurt was 10°C or less (specifically, about 5°C). Moreover, when the liquid temperature was raised to

25°C by putting the drinkable yogurt in a room, the drinkable yogurt had slightly higher sourness and thus showed a slightly poor balance of sweetness and sourness in comparison with that in the case where the liquid temperature was 10°C or less. Furthermore, when the liquid temperature was raised to 60°C, the drinkable yogurt showed a poor balance of sweetness and sourness in comparison with that in the case where the liquid temperature was 10°C or less, and in addition, had strong sweetness and strong sourness resulting in unpleasantly strong taste and flavor as a whole.

As mentioned above, the drinkable yogurt of Comparative Example 1 was less flavorful and had lower palatability in heated conditions.

[0027] [Comparative Example 2]

A drinkable yogurt was produced by the same process as that in Example 1 except that an aqueous solution containing 24.0% by weight of glucose-fructose syrup and 0.6% by weight of pectin was used instead of the aqueous solution containing 0.03% by weight of sucralose and 0.6% by weight of pectin.

Sensory evaluation was performed on the obtained drinkable yogurt by the same manner as that in Example 1, and the following result was obtained.

The obtained drinkable yogurt had a pronounced sweet taste and achieved a good balance of sweetness and sourness when the liquid temperature was 10°C or less (specifically, about 5°C). Moreover, when the liquid temperature was raised to 25°C by leaving the drinkable yogurt in a room, the drinkable yogurt had slightly weaker sweetness

and slightly stronger sourness, and showed a slightly poor balance of sweetness and sourness in comparison with that in the case where the liquid temperature was 10°C or less. Furthermore, when the liquid temperature was raised to 60°C, the drinkable yogurt had weak sweetness and strong sourness, and showed a poor balance of sweetness and sourness.

As mentioned above, the drinkable yogurt of Comparative Example 2 was less flavorful and had lower palatability in heated conditions.

[0028] [Quantification of sensory evaluation]

For each of Example 1, Comparative Example 1, and Comparative Example 2, sensory evaluation of the resultant drinkable yogurt was performed by five expert panelists. The sensory evaluation was carried out on evaluation items of intensity of sweetness and intensity of sourness on 7 grade evaluation of "3, 2, 1, 0, -1, -2, -3". "Intensity of sourness" means the intensity of sourness when the drinkable yogurt is sipped (i.e. holded in the mouth of the panelist), and "intensity of sweetness" means the intensity of sweetness when the drinkable yogurt is sipped. In the 7 grade evaluation, a larger value means "higher intensity". For example, the value "3" means "the highest intensity" and the value "-3" means "the lowest intensity". The sensory evaluation was performed at a liquid temperatures of 25°C.

Table 1 shows the results of the sensory evaluation by the average of the values of 7 grade evaluation evaluated by the five expert panelists.

[0029]

[Table 1]

| liquid temperature:<br>25°C | intensity of sweetness | intensity of sourness |
|-----------------------------|------------------------|-----------------------|
| Example 1                   | 0.25                   | -0.25                 |
| Comparative Example 1       | 0.00                   | 0.75                  |
| Comparative Example 2       | -1.00                  | 0.50                  |

[0030] The above-mentioned results revealed that, in each of Examples 1 to 3 using a high intensity sweetener, both of sweetness and sourness were in the appropriate level, and the balance of sweetness and sourness was good at liquid temperatures of 10°C, 25°C, and 50°C. On the other hand, in Comparative Example 1 using sugar, when the liquid temperature was 25°C or higher, sourness was strong, and the balance of sweetness and sourness was poor while the intensity of sweetness was appropriate. In Comparative Example 2 using glucose-fructose syrup, when the liquid temperature was 25°C or higher, sweetness was weak, sourness was strong, and the balance of sweetness and sourness was poor.

#### Industrial Applicability

[0031] According to the sweetener-containing liquid fermented milk of the present invention, it is possible to suppress reduction in palatability associated with deteriorated balance of sweetness and sourness due to an increase in the liquid temperature, which has inevitably occurred in the conventional sweetener-containing liquid fermented milks. Moreover, the sweetener-containing liquid

fermented milk of the present invention is "a palatable (i.e. delicious) liquid fermented milk even in a lukewarm or hot condition", and expected to expand the demand of consumers for liquid fermented milk.

## Claims

1. A sweetener-containing drinkable yogurt having a liquid temperature of 20°C or higher, comprising viable lactic acid bacteria, and a high intensity sweetener which is at least one kind selected from the group consisting of sucralose, aspartame, acesulfame potassium, and neotame, wherein the content of the high intensity sweetener in the sweetener-containing drinkable yogurt is 0.001% or more by weight and less than 0.030% by weight, and an acidity expressed as lactic acid is 0.60% or more, and 0.84% or less.
2. The sweetener-containing drinkable yogurt according to claim 1, which has a liquid temperature of 50°C or higher.
3. The sweetener-containing drinkable yogurt according to claim 1 or 2, which maintains a constant level of balance of sweetness and sourness in a liquid temperature range from 0 to 60°C.
4. The sweetener-containing drinkable yogurt according to any one of claims 1 to 3, comprising *Lactobacillus bulgaricus* and *Streptococcus thermophilus* as viable lactic acid bacteria.