

[DESCRIPTION]

[Title of Invention]

FERMENTED MILK FOR AMELIORATING FEELING OF FATIGUE

[Technical Field]

[0001] The present invention relates to fermented milk for ameliorating feeling of fatigue.

[Background Art]

[0002] A typical poor physical condition in the summer season is "summer fatigue". There is no clear definition of "summer fatigue". It is considered that the main symptoms of "summer fatigue" are "systemic lassitude" and "systemic malaise" and "summer fatigue" indicates a state of increasing "systemic lassitude and malaise" by acceleration of accumulation of fatigue and delay in recovery from the fatigue due to "insufficient sleep" and "decreased appetite". It is further considered that continuation of the fatigue state causes immune depression and diseases such as common cold. The prevention and precaution against the summer fatigue can be drinking water frequently, getting enough sleep, and properly taking meals. An ordinary precaution that can be readily taken such as taking food that is effective for the relief of feeling of fatigue and recovery from fatigue has been required recently.

[0003] Some studies on food and compositions for recovering from fatigue or relieving feeling of fatigue have been conducted conventionally. For example, Japanese Patent Application Publication No. 2000-159788 (PTL 1) describes an agent for

recovering from fatigue in a form of yoghurt, containing trehalose. Japanese Translation of PCT Application No. 2003-535903 (PTL 2) describes a method for treating chronic fatigue syndrome, including administering probiotic bacteria to a subject with chronic fatigue syndrome. WO 2012/63826 (PTL 3) describes fermented milk for use as an agent for relieving feeling of fatigue.

[Citation List]

[Patent Literature]

[0004]

[PTL 1] Japanese Patent Application Publication No. 2000-159788

[PTL 2] Japanese Translation of PCT Application No. 2003-535903

[PTL 3] WO 2012/63826

[Summary of Invention]

[Problem to be solved by invention]

[0005] However, food that can be applied to regular meals and has an effect of ameliorating feeling of fatigue is not yet in existence. Hence, an object of the present invention is to provide ordinary food that can be readily taken and that ameliorates feeling of fatigue.

[Means to Solve the Problem]

[0006] In order to achieve the aforementioned object, the inventors of the present invention focused on fermented milk as the ordinary food that can be readily taken and studied in detail on the effect of ameliorating feeling of fatigue in fermented milk. As the results of the study, the inventors of the present application found that "feeling of fatigue", specifically, "systemic lassitude",

"systemic malaise", "subjective stress", "daytime sleepiness", "irritability", "decreased appetite, "decreased cognitive ability", "thirst", and "loss of exhilaration" is not felt significantly or is relieved by taking fermented milk prepared using a predetermined lactic acid bacterium and completed the present invention.

[0007] That is, the present invention is as follows:

(1) fermented milk for ameliorating feeling of fatigue, prepared using a lactic acid bacterium belonging to the genus *Lactobacillus*;

(2) the fermented milk according to the item (1) above, wherein the lactic acid bacterium is *Lactobacillus delbrueckii* subsp. *bulgaricus* OLL1073R-1 (FERM BP-10741);

(3) the fermented milk according to the item (1) or (2) above, wherein the feeling of fatigue is at least one feeling selected from the group consisting of systemic lassitude, systemic malaise, subjective stress, daytime sleepiness, and irritability;

(4) the fermented milk according to any one of the items (1) to (3) above, used for ameliorating a subjective symptom of summer fatigue;

(5) a lactic acid bacterium belonging to the genus *Lactobacillus*, the lactic acid bacterium having an effect of ameliorating feeling of fatigue;

(6) the lactic acid bacterium according to the item (5) above, wherein the feeling of fatigue is at least one feeling selected from the group consisting of systemic lassitude, systemic malaise,

subjective stress, daytime sleepiness, and irritability; and

(7) the lactic acid bacterium according to the item (5) or (6) above, used for ameliorating a subjective symptom of summer fatigue.

[0008] The present invention further includes the following invention:

(8) a method for ameliorating feeling of fatigue, including the step of causing a subject to take fermented milk prepared using a lactic acid bacterium belonging to the genus *Lactobacillus*;

(9) the method according to the item (8) above, wherein the lactic acid bacterium is *Lactobacillus delbrueckii* subsp. *bulgaricus* OLL1073R-1 (FERM BP-10741);

(10) the method according to the item (8) or (9) above, wherein the feeling of fatigue is at least one feeling selected from the group consisting of systemic lassitude, systemic malaise, subjective stress, daytime sleepiness, and irritability;

(11) the method according to any one of the items (8) to (10) above, used for ameliorating a subjective symptom of summer fatigue;

(12) use of a lactic acid bacterium belonging to the genus *Lactobacillus* in production of fermented milk for ameliorating feeling of fatigue;

(13) the use according to the item (12) above, wherein the lactic acid bacterium is *Lactobacillus delbrueckii* subsp. *bulgaricus* OLL1073R-1 (FERM BP-10741);

(14) the use according to the item (12) or (13) above, wherein the feeling of fatigue is at least one feeling selected from the

group consisting of systemic lassitude, systemic malaise, subjective stress, daytime sleepiness, and irritability;

(15) the use according to any one of the items (12) to (14) above, wherein the fermented milk is used for ameliorating a subjective symptom of summer fatigue;

(16) a lactic acid bacterium belonging to the genus *Lactobacillus*, used for producing fermented milk for ameliorating feeling of fatigue;

(17) *Lactobacillus delbrueckii* subsp. *bulgaricus* OLL1073R-1 (FERM BP-10741) being a lactic acid bacterium belonging to the genus *Lactobacillus*, used for producing fermented milk for ameliorating feeling of fatigue;

(18) the lactic acid bacterium belonging to the genus *Lactobacillus* according to the item (16) or (17) above, wherein the feeling of fatigue is at least one feeling selected from the group consisting of systemic lassitude, systemic malaise, subjective stress, daytime sleepiness, and irritability;

(19) the lactic acid bacterium belonging to the genus *Lactobacillus* according to any one of the items (16) to (18) above, used for ameliorating a subjective symptom of summer fatigue;

(20) a composition for ameliorating feeling of fatigue, containing, as an active ingredient, at least one of a lactic acid bacterium belonging to the genus *Lactobacillus* and a fermented milk product thereof (here, the "fermented milk product" means a substance generated by fermentation of milk with the lactic acid bacterium, and this "fermented milk product" contains the

above-mentioned fermented milk");

(21) a method for using at least one of a lactic acid bacterium belonging to the genus *Lactobacillus* and a fermented milk product thereof as an agent for ameliorating feeling of fatigue;

(22) a method for ameliorating feeling of fatigue, including administering at least one of a lactic acid bacterium belonging to the genus *Lactobacillus* and a fermented milk product thereof;

(23) a fermented milk product of a lactic acid bacterium belonging to the genus *Lactobacillus*, for use as an agent for ameliorating feeling of fatigue;

(24) a lactic acid bacterium belonging to the genus *Lactobacillus*, for use as an agent for ameliorating feeling of fatigue;

(25) use of a fermented milk product of a lactic acid bacterium belonging to the genus *Lactobacillus*, for producing a composition for ameliorating feeling of fatigue;

(26) use of a lactic acid bacterium belonging to the genus *Lactobacillus*, for producing fermented milk for ameliorating feeling of fatigue; and

(27) a method for producing a composition for ameliorating feeling of fatigue, including supplying a milk raw material to a lactic acid bacterium belonging to the genus *Lactobacillus*.

[Advantageous Effects of Invention]

[0009] The present invention can significantly ameliorate feeling of fatigue such as "summer fatigue" with a main symptom of systemic lassitude or malaise by taking fermented milk prepared

using predetermined lactic acid bacteria. Specifically fermented milk is ordinary food that has rich eating experiences and can be readily taken and thus can be an effective precaution against feeling of fatigue such as "summer fatigue" and can largely contribute to amelioration of feeling of fatigue.

[Brief Description of Drawings]

[0010]

[Fig. 1]

Fig. 1 is a graph showing results obtained by evaluating feeling of fatigue of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1. A symbol * represents the presence of significant difference at a significance level of less than 5% in the unpaired t-test.

[Fig. 2]

Fig. 2 is a graph showing results obtained by evaluating "systemic lassitude" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1. A symbol * represents the presence of significant difference at a significance level of less than 5% in the unpaired t-test.

[Fig. 3]

Fig. 3 is a graph showing results obtained by evaluating "systemic malaise" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1. A symbol * represents the presence

of significant difference at a significance level of less than 5% in the unpaired t-test.

[Fig. 4]

Fig. 4 is a graph showing results obtained by evaluating "subjective stress" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1. A symbol * represents the presence of significant difference at a significance level of less than 5% in the unpaired t-test.

[Fig. 5]

Fig. 5 is a graph showing results obtained by evaluating "daytime sleepiness" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1.

[Fig. 6]

Fig. 6 is a graph showing results obtained by evaluating "irritability" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1.

[Fig. 7]

Fig. 7 is a graph showing results obtained by evaluating "decreased appetite" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1.

[Fig. 8]

Fig. 8 is a graph showing results obtained by evaluating "decreased

cognitive ability" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1.

[Fig. 9]

Fig. 9 is a graph showing results obtained by evaluating "thirst" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1.

[Fig. 10]

Fig. 10 is a graph showing results obtained by evaluating "loss of exhilaration" of subjects by the VAS method before and after regular intake of a placebo drink and a test drink over the period of 12 weeks in Experimental Example 1.

[Fig. 11]

Fig. 11 is a graph showing profiles of the daily highest temperatures and the daily lowest temperatures over the test period (12 weeks) of the Experimental Example 1.

[Description of Embodiments]

[0011] In the present invention, fermented milk is prepared using lactic acid bacteria. A method for preparing the fermented milk can be, for example, a "method where a milk raw material is pasteurized and cooled, a lactic starter is thereafter added to the milk raw material, and the lactic starter-added milk raw material is then fermented under conditions of a fermentation temperature and a fermentation time under which the lactic starter-added milk raw material can have a predetermined lactic

acidity". The concentration of the lactic acid can be, for example, 0.6 to 1.2 wt%. The fermentation temperature can be, for example, 40°C to 45°C. The fermentation time is, for example, 2 to 12 hours.

[0012] In the present invention, the "lactic acid bacteria" is a general term of bacteria taxonomically determined as lactic acid bacteria and is not limited by a bacterial species or bacterial strain. The lactic acid bacteria are classified into plant-derived lactic acid bacteria and animal-derived lactic acid bacteria according to the derivation in some cases. However, in the present invention, both of plant-derived lactic acid bacteria and animal-derived lactic acid bacteria can be used. One or more bacterial strains selected from lactic acid bacteria belonging to the genus *Lactobacillus* are preferable as a bacterial strain of lactic acid bacteria of the present invention because of having sufficient eating experiences in fermented milk such as yoghurt. The lactic acid bacteria belonging to the genus *Lactobacillus* are more preferably "*Lactobacillus delbrueckii* subsp. *bulgaricus*" referred to as *Lactobacillus bulgaricus*, yet more preferably "*Lactobacillus delbrueckii* subsp. *bulgaricus* OLL1073R-1 (accession number: FERM BP-10741)" among them.

[0013] As the lactic starter, a combined use of *Streptococcus thermophiles* with *Lactobacillus bulgaricus* is preferable from the viewpoint of production efficiency and preference. *Streptococcus thermophiles* is more preferably *Streptococcus thermophilus* OLS3059 (accession number: FERM P-15487). Lactic acid bacteria other than *Lactobacillus bulgaricus* and *Streptococcus thermophiles* and

fermented microorganisms such as *Bifidobacterium bifidum* and yeast can be added as a lactic starter or for the purpose of imparting functionality.

[0014] "Lactobacillus delbrueckii subsp. bulgaricus OLL1073R-1" here is deposited with International Patent Organism Depositary, National Institute of Advanced Industrial Science and Technology, as an accession number of FERM BP-10741 (deposition date: November 29, 2006). "Streptococcus thermophilus OLS3059" here is deposited with International Patent Organism Depositary, National Institute of Advanced Industrial Science and Technology, as an accession number of FERM P-15487 (deposition date: February 29, 1996).

[0015] In the present invention, "fermented milk" is obtained by fermenting milk and encompasses, but not limited to, for example, "fermented milk", "fermented milk drink", "milk drink", and "natural cheese" defined in Ministerial Ordinance on Milk and Milk Products Concerning Compositional Standards (hereinafter referred to as "Ministerial Ordinance on Milk"). For example, the fermented milk is, but not limited to, "fermented milk" defined in Ministerial Ordinance on Milk, i.e., fermented milk obtained by fermenting, with lactic acid bacteria or yeast, milk including raw milk, cow's milk, special milk, raw goat's milk, pasteurized goat's milk, raw sheep's milk, composition modified milk, low fat milk, skimmed milk, and processed milk or milk having the same milk solids-not-fat content or more of those thereof and forming the fermented milk into a solid shape (hard type), a paste (soft type), or a liquid

(drink type) or freezing the formed fermented milk. In the fermented milk of the present invention, the range of the milk solids-not-fat content is, for example, preferably 4.0% to 12.0%, more preferably 6.0% to 10.0%, yet more preferably 7.0% to 9.0%. In the fermented milk of the present invention, the range of the milk fat content is, for example, preferably 0.2% to 4.0%, more preferably 0.3% to 3.0%, yet more preferably 0.4% to 2.0%.

[0016] The fermented milk can be, for example, typically yoghurt. In the international standard defined by UN Food and Agriculture Organization (FAO)/World Health Organization (WHO), "a product called yoghurt is made of milk products such as milk and a skimmed milk powder using a lactic acid fermentation action of both *Streptococcus thermophiles* and *Lactobacillus delbrueckii* ssp. *bulgaricus*, and large amounts of these two types of bacteria are present in the final product". In the present invention, "yoghurt" encompasses the yoghurt defined above by FAO/WHO. Examples of this yoghurt include plain yoghurt, hard yoghurt (set-style yoghurt), soft yoghurt, and a yoghurt drink. The present invention is preferably a yoghurt drink from the viewpoint of the ease of drinking at the time of feeling fatigue.

[0017] Individually packaging an amount that is appropriate for one-time intake of the fermented milk of the present invention is preferable from the viewpoint of usability because the fermented milk of the present invention can be appropriately, readily taken. In the case of fermented milk having a milk solids-not-fat content of 8.0%, the amount that is suitable for one-time intake is, for

example, preferably in the range from 50 to 200 mL, more preferably from 80 to 150 mL, yet more preferably from 100 to 120 mL although it depends on the extent of feeling of fatigue to be ameliorated, additionally it differs from person to person and it is uneven. Alternatively, the amount for one-time intake is preferably in the range from 50 to 200 g, more preferably from 80 to 150 g, yet more preferably from 100 to 120 g.

[0018] In the present invention, "individual packaging" encompasses any general packaging such as, for example, a container with a lid, a bottle with a cap, an individual packing bag, a pouch, a tube. In the present invention, it is possible to clarify the application of the fermented milk of the present invention by describing the application, the efficacy, and the intake method of the fermented milk of the present invention on an individual package or a package containing a plurality of individual packages and/or enclosing a matter describing them in an individual package or a package containing a plurality of individual packages and/or separately presenting a matter describing them such as a brochure.

[0019] From the viewpoint of increasing an effect of ameliorating feeling of fatigue, the fermented milk of the present invention is taken regularly over the period of preferably 4 weeks or more, more preferably 6 weeks or more, yet more preferably 8 weeks or more, yet more preferably 10 weeks or more, yet more preferably 12 weeks or more, yet more preferably 24 weeks or more, yet more preferably 36 weeks or more. The fermented milk of the present invention has sufficient eating experiences and thus can

be safety taken. Therefore, the upper limit of the intake period is not limited to particular periods, and it is possible to regularly take permanently. When the upper limit is forcedly set, it is, for example, 60 weeks or less. The upper limit may be, for example, 120 weeks or less, 100 weeks or less, 80 weeks or less according to the extent of feeling of fatigue to be ameliorated and individuals.

[0020] Feeling of fatigue can be ameliorated by taking the fermented milk of the present invention. Specifically, "systemic lassitude", "systemic malaise", "subjective stress", "daytime sleepiness", "irritability", "decreased appetite", "decreased cognitive ability", "thirst", and "loss of exhilaration" can be ameliorated by taking the fermented milk of the present invention. The fermented milk of the present invention exhibits the effect in a period of high temperature especially in the summer season. The present invention thus can significantly ameliorate feeling of fatigue such as "summer fatigue" with a main symptom of systemic lassitude or malaise by the fermented milk that can be easily available and readily taken.

[0021] In the present invention, an indicator of amelioration of fatigue can be a score obtained by, for example, measuring subjective feelings by a visual analog scale (VAS) method. Alternatively, the content or the concentration of a substance in the body or a biomarker that suggests amelioration of fatigue can be the indicator.

[0022] In the present invention, a drink containing lactic acid

bacteria belonging to the genus *Lactobacillus* and a drink containing no lactic acid bacteria belonging to the genus *Lactobacillus* were compared by the examples described below, and the fermented milk prepared using lactic acid bacteria belonging to the genus *Lactobacillus* was found to have an effect of ameliorating feeling of fatigue. The present invention thus further provides lactic acid bacteria belonging to the genus *Lactobacillus*, the lactic acid bacteria having an effect of ameliorating feeling of fatigue, and metabolites thereof. In this case, a person skilled in the art can appropriately determine the amount of lactic acid bacteria belonging to the genus *Lactobacillus* taken daily for the purpose of obtaining an effect of ameliorating feeling of fatigue, although it depends on age and gender. The amount of lactic acid bacteria belonging to the genus *Lactobacillus* taken daily is preferably 10^6 cfu or more, more preferably 10^7 cfu or more, yet more preferably 10^8 cfu or more. The upper limit of the amount is not limited to particular amounts and is, for example, 10^{12} cfu.

[0023] The lactic acid bacteria of the present invention include not only bacterial cells, but also objects derived from bacterial cells such as homogenates of bacterial cells. The metabolites of the lactic acid bacteria of the present invention include metabolites obtained by cultivating or fermenting the lactic acid bacteria. For example, *Lactobacillus delbrueckii* subsp. *bulgaricus* OLL1073R-1 (accession number: FERM BP-10741) is known to generate exopolysaccharide (EPS) during cultivation. However, the present invention includes using this

exopolysaccharide. In the present invention, the lower limit of the amount of this exopolysaccharide to be taken daily is 500 µg, preferably 1.0 mg, more preferably 2.0 mg. The upper limit thereof is not limited to particular amounts and is, for example, 8.0 mg. Examples

[0024] The following describes the present invention in further detail on the basis of the examples. The present invention, however, is by no means limited thereto.

[0025] [Example 1]

Lactobacillus delbrueckii subsp. bulgaricus OLL1073R-1 (accession number: FERM BP-10741) and Streptococcus thermophilus OLS3059 (accession number: FERM P-15487) were added as starters to a mixture A containing a milk product, sugar, and raw material water, the mixture A was then fermented, and a mixture B containing sugar syrup, sugar, pectin, a flavor, Stevia, and raw material water was thereafter added thereto. A drink-type yoghurt (hereinafter referred to as the "test drink") having a milk solids-not-fat content of 8.0% and a milk fat content of 0.5% was thus produced. Lactic acid was added to a mixture of raw materials that are the same as those of the mixtures A and B, to produce a drink (hereinafter referred to as the "placebo drink") having the same milk solids-not-fat content, the same milk fat content, and the same calories. Each plastic bottle with a cap and no mark was filled with 100 mL of the test drink or the placebo drink.

[0026] [Experimental Example 1]

A randomized, double-blind, placebo-controlled,

parallel-group comparative trial was conducted in 49 male subjects aged 30 or more to less than 50 with a subjective symptom of summer fatigue every year.

The subjects were divided into two groups. One (25 subjects) of the groups taken the test drink (100 mL) produced in Example 1 once daily (hereinafter this group is referred to as the "test drink intake group"). The other group (24 subjects) taken the placebo drink (100 mL) produced in Example 1 once daily (hereinafter this group is referred to as the "placebo intake group"). The intake period was 12 weeks.

[0027] The evaluation was conducted by the visual analog scale (VAS) method. The VAS method is a method for evaluating subjective feelings of subjects by causing subjects to mark their subjective feelings at the time of marking, as a single straight line on a 100 mm-length line segment having both ends that represent extreme states by vertical lines and measuring the lengths from the left hand end to the vertical lines are measured and used as VAS scores. In the present evaluation of "feeling of fatigue", for example, the left end indicates score 0 which represents "good feeling without any feeling of fatigue", and the right end indicates score 10 which represents "the worst feelings of fatigue by which a subject cannot do anything", and the subjects marked on the 100-mm line segment. Thus, the smaller the score is, the better the evaluation result is. In the present evaluation, 10 items of "feeling of fatigue", "systemic lassitude", "systemic malaise", "subjective stress", "daytime sleepiness", "irritability", "decreased

appetite", "decreased cognitive ability", "thirst", and "loss of exhilaration" were set as specific evaluation items. The results of the evaluation by the VAS method were results obtained before start of intake and after intake over 12 weeks.

[0028] Figs. 1 to 10 are graphs showing the results of the evaluation conducted by the VAS method. In each graph, a white bar chart represents the result of the placebo intake group, the black bar chart represents the result of the test drink intake group, and the line segment represents the range of standard deviation.

[0029] Fig. 1 shows the results of the evaluation of "feeling of fatigue" conducted by the VAS method. The VAS scores of the test drink intake group were significantly lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that feeling of fatigue is ameliorated by taking the test drink.

[0030] Fig. 2 shows the results of the evaluation of "systemic lassitude" conducted by the VAS method. The VAS scores of the test drink intake group were significantly lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that systemic lassitude is ameliorated by taking the test drink.

[0031] Fig. 3 shows the results of the evaluation of "systemic malaise" conducted by the VAS method. The VAS scores of the test drink intake group were significantly lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that systemic malaise is ameliorated by taking the

test drink.

[0032] Fig. 4 shows the results of the evaluation of "subjective stress" conducted by the VAS method. The VAS scores of the test drink intake group were significantly lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that subjective stress is ameliorated by taking the test drink.

[0033] Fig. 5 shows the results of the evaluation of "daytime sleepiness" conducted by the VAS method. The VAS scores of the test drink intake group were lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that daytime sleepiness is ameliorated by taking the test drink.

[0034] Fig. 6 shows the results of the evaluation of "irritability" conducted by the VAS method. The VAS scores of the test drink intake group were lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that irritability is ameliorated by taking the test drink.

[0035] Fig. 7 shows the results of the evaluation of "decreased appetite" conducted by the VAS method. The VAS scores of the test drink intake group were lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that decreased appetite is ameliorated by taking the test drink.

[0036] Fig. 8 shows the results of the evaluation of "decreased cognitive ability" conducted by the VAS method. The VAS scores of the test drink intake group were lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that

decreased cognitive ability is ameliorated by taking the test drink.

[0037] Fig. 9 shows the results of the evaluation of "thirst" conducted by the VAS method. The VAS scores of the test drink intake group were lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that thirst is ameliorated by taking the test drink.

[0038] Fig. 10 shows the results of the evaluation of "loss of exhilaration" conducted by the VAS method. The VAS scores of the test drink intake group were lower than those of the placebo intake group after the intake over 12 weeks. This demonstrates that loss of exhilaration is ameliorated by taking the test drink.

[0039] Fig. 11 shows profiles of the daily highest temperatures and the daily lowest temperatures over the intake period (July 4, 2015 to September 25, 2015) in Experimental Example 1. It can be read from Fig. 11 that there are many days of over 30°C of the highest temperature. The above results were obtained in such situation. Thus, it can be said that the fermented milk of the present invention is favorable for ameliorating subjective symptoms of specifically summer fatigue.

[Industrial Applicability]

[0040] The present invention can ameliorate feeling of fatigue in "summer fatigue" by ordinary fermented milk that can be readily taken. Fermented milk is ordinary food that has rich eating experiences and can be readily taken and thus can be an effective precaution against "summer fatigue" and can largely contribute to amelioration of feeling of fatigue and thus is really useful.

[CLAIMS]

[Claim 1]

Fermented milk for ameliorating feeling of fatigue, prepared using a lactic acid bacterium belonging to the genus *Lactobacillus*.

[Claim 2]

The fermented milk according to claim 1, wherein the lactic acid bacterium is *Lactobacillus delbrueckii* subsp. *bulgaricus* OLL1073R-1 (FERM BP-10741).

[Claim 3]

The fermented milk according to claim 1 or 2, wherein the feeling of fatigue is at least one feeling selected from the group consisting of systemic lassitude, systemic malaise, subjective stress, daytime sleepiness, and irritability.

[Claim 4]

The fermented milk according to any one of claims 1 to 3, used for ameliorating a subjective symptom of summer fatigue.

[Claim 5]

A lactic acid bacterium belonging to the genus *Lactobacillus*, the lactic acid bacterium having an effect of ameliorating feeling of fatigue.

[Claim 6]

The lactic acid bacterium according to claim 5, wherein the feeling of fatigue is at least one feeling selected from the group consisting of systemic lassitude, systemic malaise, subjective stress, daytime sleepiness, and irritability.

[Claim 7]

The lactic acid bacterium according to claim 5 or 6, used for ameliorating a subjective symptom of summer fatigue.