USE OF FERMENTED SUPERNATANT OF LACTIC ACID BACTERIA IN A MANUFACTURE OF MEDICAMENT FOR IMPROVING SARCOPENIA

BACKGROUND

Field of Invention

[0001] The present invention relates to a fermented supernatant of lactic acid bacteria for use as a medicament for improving symptoms of sarcopenia. More particularly, the present invention relates to a fermented supernatant of lactic acid bacteria for use as a medicament for increasing FNDC5 gene expression, muscle mass and/or decreasing fat mass, thereby improving symptoms of sarcopenia, obesity and/or sarcopenic obesity.

Description of Related Art

[0002] Preventing and/or delaying disabilities and/or chronic diseases become an important issue as getting older. Sarcopenia and/or obesity are the main causes of disabilities and/or chronic diseases in older adults. The characteristic symptoms of sarcopenia include generalized and systematic loss of skeletal muscle mass and functions. A patient may experience a decreasing physical activity and a worse quality of life if his/her sarcopenia becomes worse, and the patient is at higher risk of diseases, disabilities, falls and even death.

[0003] Obesity is a medical condition with an abnormal or excessive accumulation of fat, in which the excessive fat easily results in insulin resistance and/or chronic inflammation, leading to many chronic diseases, such as metabolic syndromes, cardiovascular disease and/or diabetes. Moreover, obesity is positively related

WHAT IS CLAIMED IS:

1. A use of a fermented supernatant of lactic acid bacteria in a manufacture of a medicament for improving sarcopenia, wherein the medicament comprises the fermented supernatant of the lactic acid bacteria as an active ingredient, thereby increasing a transcription activity of FNDC5 promoter, the fermented supernatant of the lactic acid bacteria is obtained by performing a fermentation step at 32°C to 42°C on the lactic acid bacteria for 16 hours, followed by a solid-liquid separation step and a sterilization step, the lactic acid bacteria is selected from the group consisting of *Lactobacillus rhamnosus* GKLC1, *Lactobacillus acidophilus* GKA7, *Lactobacillus casei* GKC1 and any combination thereof, the *Lactobacillus rhamnosus* GKLC1 is deposited in China General Microbiological Culture Collection Center (CGMCC) on January 12th, 2018 under an accession number of CGMCC No. 15202, the *Lactobacillus acidophilus* GKA7 is deposited in National Institute of Technology and Evaluation (NITE), Patent Microorganisms Depositary on August 5th, 2022 under an accession number of NITE BP-03701, and the *Lactobacillus casei* GKC1 is deposited in CGMCC on January 12th, 2018 under an accession number of CGMCC No. 15204;

wherein the fermentation step is performed with a lactic acid bacterial culture medium, and based on 100 wt% of the lactic acid bacterial culture medium, the lactic acid bacterial culture medium comprises 1 weight (wt) % to 10 wt% of carbon sources, 1 wt% to 10 wt% of nitrogen sources and water with a balance;

wherein the solid-liquid separation step is a centrifugation step, a filtration step or a combination thereof, and the sterilization step is performed at 120°C to 130°C for 0.5 minutes to 3 minutes.

2. The use of the fermented supernatant of the lactic acid bacteria in the manufacture of the medicament for improving sarcopenia of claim 1, wherein the

carbon sources are selected from the group consisting of glucose, sucrose, lactose, fructose, mannose, sorbitol, glycerin, molasses and any combination thereof.

3. The use of the fermented supernatant of the lactic acid bacteria in the manufacture of the medicament for improving sarcopenia of claim 1, wherein the nitrogen sources are selected from the group consisting of soy protein, yeast extract, beef extract, casein powder, whey protein powder, fish protein hydrolysate, plant-extracted protein, peptone and any combination thereof.

4. The use of the fermented supernatant of the lactic acid bacteria in the manufacture of the medicament for improving sarcopenia of claim 1, wherein an effective dose of the fermented supernatant of the lactic acid bacteria in the medicament for improving sarcopenia is 50 μg/mL to 200 μg/mL.

5. The use of the fermented supernatant of the lactic acid bacteria in the manufacture of the medicament for improving sarcopenia of claim 1, wherein an effective dose of the fermented supernatant of the lactic acid bacteria in the medicament for improving sarcopenia is 50 μg/mL to 100 μg/mL when the lactic acid bacteria is the *Lactobacillus rhamnosus* GKLC1.

6. The use of the fermented supernatant of the lactic acid bacteria in the manufacture of the medicament for improving sarcopenia of claim 1, wherein an effective dose of the fermented supernatant of the lactic acid bacteria in the medicament for improving sarcopenia is 100 μg/mL to 200 μg/mL when the lactic acid bacteria is the *Lactobacillus casei* GKC1 and/or the *Lactobacillus acidophilus* GKA7.