Claims

1. A method for preparing a casein powder, characterized in that it comprises sequentially subjecting skim milk to microfiltration, ultrafiltration, and drying steps,

wherein in the microfiltration step, a volume concentration factor is 1 to 5; and

in the ultrafiltration step, an ultrafiltration membrane having a molecular weight cut-off of 30 kDa to 100 kDa is used, the concentration temperature is 10°C to 20°C, the concentration pressure is 0.1 to 1 MPa, and a total solids content after concentration is 10% to 25%.

2. The method for preparing a casein powder according to claim 1, characterized in that in the microfiltration step, a ratio of diafiltration water volume to retentate volume is 2:1 to 6:1; and

in the ultrafiltration step, a ratio of diafiltration water volume to total feed volume of the ultrafiltration step is 0.5:1 to 3:1.

3. The method for preparing a casein powder according to claim 1 or 2, characterized in that in the microfiltration step, a ratio of diafiltration water volume to retentate volume is 4.5:1; and

in the ultrafiltration step, a ratio of diafiltration water volume to total feed volume of the ultrafiltration step is 1:1.

4. The method for preparing a casein powder according to any one of claims 1 to 3, characterized in that in the microfiltration step, a microfiltration membrane with a pore size of 0.1 to 0.2 micrometers is used, the separation temperature is 40°C to 60°C, and the transmembrane pressure is 0.1 to 0.2 MPa.

5. The method for preparing a casein powder according to any one of claims 1 to 4, characterized in that the drying step is performed by using electrostatic spray drying.

6. The method for preparing a casein powder according to any one of claims 1 to 5, characterized in that in the electrostatic spray drying step, the atomizing nozzle uses a pressure atomizer; an atomization pressure is 0.1 to 2 MPa, an atomization temperature is 20°C to 60°C, a protective gas is nitrogen, an inlet air temperature is 60°C to 90°C, an outlet air temperature is 30°C to 50°C, an electrostatic field voltage is 1 to 20 kV, and a material preheating temperature is 30°C to 60°C.

7. The method for preparing a casein powder according to any one of claims 1 to 6, characterized in that the skim milk is obtained by standardizing raw bovine milk, followed by skimming and pasteurization.

8. The method for preparing a casein powder according to any one of claims 1 to 7, characterized in that a fat content in the skim milk is 0.01% to 0.1%.

9. The method for preparing a casein powder according to any one of claims 1 to 8, characterized in that the casein powder is micellar casein concentrate power.

10. A casein powder, characterized in that it is prepared by the method according to any one of claims 1 to 9.

11. The casein powder according to claim 10, characterized in that the casein powder has a centrifugal sedimentation rate of less than 28%, as determined according to GB 5413.29-2010; and

a dispersibility of greater than 46%, as determined according to IDF 87:1979.

12. The casein powder according to claim 10 or 11, characterized in that the casein powder is micellar casein concentrate power.