Claims:

~~1. A method for biogenic waste treatment, characterized in the following steps:~~

~~Step 1 :The biogenic waste is evenly mixed with water vapor so that the temperature reaches 130-190°C and the pressure reaches 1.5-1.9 MPa after being mixed, and this state is maintained for 1-25 minutes;~~

~~Step 2：The pressure of the mixture of said biogenic waste and water vapor is reduced to normal pressure so as to conducting low-molecularization of the biogenic waste and obtain a low-molecularized mixture;~~

~~Step 3: The low-molecularized mixture is separated so as to obtain the final product, characterized in that the time for reducing the pressure of the mixture of said biogenic waste and water vapor to normal pressure is 30-60 seconds, so that the biogenic waste is blasted, hereby achieving a low-molecularization.~~

~~2. The method for biogenic waste treatment according to Claim 1, wherein the biogenic waste is stirred when being mixed with water vapor as specified in Step 1, so that the biogenic waste is evenly mixed with the water vapor;~~

~~preferably, the biogenic waste is stirred when the temperature has reached 130-190°C and the pressure has reached 1.5-1.9 MPa in the process of being mixed with water vapor as specified in Step 1.~~

~~3. The method for biogenic waste treatment according to Claim 1, wherein when separating the low-molecularized mixture as specified in Step 3, centrifugal separation, static separation, pressurized separation, membrane separation or any combination of said separation methods are adopted.~~

~~4. The method for biogenic waste treatment according to Claim 3, wherein prior to separating the low-molecularized mixture as specified in Step 3, inactive gases are supplied into said low-molecularized mixture so as to prevent the obtained low-molecularized mixture from being oxidized.~~

~~5. The method for biogenic waste treatment according to any one of Claims 1, 3 and 4, wherein when separating the low-molecularized mixture as specified in Step 3, liquid solid separation method is firstly adopted to perform liquid solid separation for said low molecularized mixture, and then low-molecularized liquid constituents and solid constituents are collected;~~

~~preferably, heat exchange for said low-molecularized mixture is firstly conducted prior to performing the liquid solid separation for said low molecularized mixture using liquid solid separation method, so as to maintain the temperature of said low-molecularized mixture for liquid solid separation to be equivalent to the temperature for conducting the low-molecularization;~~

~~preferably, heat exchange for said liquid constituents is conducted after performing liquid solid separation for said low-molecularized mixture and before collecting the low-molecularized liquid constituents so as to reduce the temperature of the collected low-molecularized liquid constituents.~~

~~6~~1. A device for biogenic waste treatment comprising

A reaction vessel, which is used for holding different kinds of wastes to conduct hydrothermal reaction, and the reaction conditions are maintained as follows for 1-25 minutes: the temperature is 130-190℃ and the pressure is 1.5-1.9MPa;

A stirring device, which is disposed in said reaction vessel to stir the wastes in the reaction vessel;

A vapor input device, which is communicated with said reaction vessel and is designed to supply medium-pressure vapor to said reaction vessel,

wherein said device for biogenic waste treatment comprises:

A pressure-reducing regulator with its inlet being connected with said reaction vessel, which is designed to reduce the pressure of the mixture of certain temperature and pressure in the reaction vessel to normal pressure, so as to conducting the low-molecularization of the biogenetic wastes; and

A separation device ~~being communicated with the outlet of said pressure-reducing regulator, which is designed to separate the products output from the reaction vessel and/or the mixture decompressed through said pressure-reducing regulator so as to obtain the final product,~~ comprising a liquid-solid separator, a solid collecting tank and a liquid collecting tank, wherein the inlet of said liquid-solid separator is connected with said pressure-reducing regulator through pipeline; the liquid separated via liquid solid separation is output to said liquid collecting tank through liquid outlet, and the solid separated via liquid solid separation is output to said solid collecting tank through solid outlet,

characterized in that the pressure-reducing regulator is designed so that the time for reducing the pressure of the mixture to normal pressure is 30-60 seconds, wherein the biogenic waste is blasted, hereby achieving a low-molecularization, and

said liquid-solid separator is set 5-15 meters above said pressure-reducing regulator, and is driven to be rotated by kinetic energy of said blasting of the biogenic waste instead of by other external force.

~~7~~2. The device for biogenic waste treatment according to Claim ~~6~~1, wherein said stirring device comprises:

A rotating shaft, which horizontally runs through said reaction vessel;

More than one stirring blade, which are set on the rotating shaft in said reaction vessel preferably in such a manner: said stirring blades are vertically disposed on said rotating shaft at intervals and slants with respect to the direction of the rotating shaft; and

A power mechanism, which is connected with one end of the horizontal rotating shaft outside of the reaction vessel and is designed to drive said rotating shaft to rotate, wherein said driving device is preferably a motor.

~~8~~3. The device for biogenic waste treatment according to Claim ~~7~~2, wherein a shaft seal device is set on the position where said rotating shaft is connected with said reaction vessel so as to seal this position where said rotating shaft is connected with said reaction vessel; said shaft seal device comprising:

A fixing member, which is fitted on said rotating shaft and is in fixed connection with said reaction vessel;

A gasket, which is fitted between said rotating shaft and said fixing member; and

A gland, which is fitted on said rotating shaft, pressed on said gasket and is connected with said fixing member.

Preferably, a plurality of said gaskets are fitted on said rotating shaft one overlapping the other.

~~9~~4. The device for biogenic waste treatment according to Claim ~~8~~3, wherein an elastic element is provided on the position where said gland is connected with said fixing member, wherein said elastic element is preferably a spring or an oil buffer.

~~10~~5. The device for biogenic waste treatment according to any one of Claims ~~6~~1-~~9~~4, characterized in that said pressure reducing regulator is a pressure reducing valve; ~~said separation device comprising:~~

In said separation device, said liquid-solid separator, said solid collecting tank and said liquid collecting tank are a~~A~~ first-stage separation device~~, which is designed to perform solid-liquid separation for the mixture that is output by said reaction vessel and is decompressed through said~~

~~pressure-reducing regulator~~;

Said separation device further comprises a~~A~~ second-stage separation device, which is connected with said first-stage separation device and/or said reaction vessel and is designed to perform the secondary separation for the products output by said reaction vessel and/or the products separated from said first-stage separation device so as to obtain the final product.

~~11. The device for biogenic waste treatment according to Claim10, wherein said first stage separation device comprises liquid-solid separator, solid collecting tank and liquid collecting tank, wherein the inlet of said liquid-solid separator is connected with said pressure reducing regulator through pipeline; the liquid separated via liquid solid separation is output to said liquid collecting tank through liquid outlet, and the solid separated via liquid solid separation is output to said solid collecting tank through solid outlet.~~

~~12~~6. The device for biogenic waste treatment according to Claim ~~11~~5, wherein a first heat exchanger is provided between said liquid solid separator and said pressure-reducing regulator and is designed to maintain the temperature of the low-molecularized mixture for liquid solid separation to be equivalent to the temperature for conducting the low-molecularization;

preferably, a second heat exchanger is provided between said liquid solid separator and said liquid collecting tank, and is intended to condense the liquid output from said liquid solid separator; said first heat exchanger or the second heat exchanger being designed as shell-and-tube heat exchanger, immersing heat exchanger, coil pipe heat exchanger or serpentine type heat exchanger.

~~13~~7. The device for biogenic waste treatment according to ~~any one of~~ Claims ~~11 or 12~~ 6, wherein ~~said liquid solid separator is set 5-15 meters above said pressure-reducing regulator;~~ said second-stage separation device is

selected from centrifugal separation device, static separation device, pressurized separation device, pressure separation device, membrane treatment device or any combination of them.

~~14~~8. The device for biogenic waste treatment according to Claim ~~6~~1, wherein a plurality of said reaction vessels are provided in parallel, and the number of the stirring devices, the vapor input devices and the pressure-reducing regulators connected with said reaction vessels corresponds to the number of said reaction vessels.

Claims:

1. A device for biogenic waste treatment comprising

A reaction vessel, which is used for holding different kinds of wastes to conduct hydrothermal reaction, and the reaction conditions are maintained as follows for 1-25 minutes: the temperature is 130-190℃ and the pressure is 1.5-1.9MPa;

A stirring device, which is disposed in said reaction vessel to stir the wastes in the reaction vessel;

A vapor input device, which is communicated with said reaction vessel and is designed to supply medium-pressure vapor to said reaction vessel, wherein said device for biogenic waste treatment comprises:

A pressure-reducing regulator with its inlet being connected with said reaction vessel, which is designed to reduce the pressure of the mixture of certain temperature and pressure in the reaction vessel to normal pressure, so as to conducting the low-molecularization of the biogenetic wastes; and

A separation device comprising a liquid-solid separator, a solid collecting tank and a liquid collecting tank, wherein the inlet of said liquid-solid separator is connected with said pressure-reducing regulator through pipeline; the liquid separated via liquid solid separation is output to said liquid collecting tank through liquid outlet, and the solid separated via liquid solid separation is output to said solid collecting tank through solid outlet,

characterized in that the pressure-reducing regulator is designed so that the time for reducing the pressure of the mixture to normal pressure is 30-60 seconds, wherein the biogenic waste is blasted, hereby achieving a low-molecularization, and

said liquid-solid separator is set 5-15 meters above said pressure-reducing regulator, and is driven to be rotated by kinetic energy of said blasting of the biogenic waste instead of by other external force.

2. The device for biogenic waste treatment according to Claim 1, wherein said stirring device comprises:

A rotating shaft, which horizontally runs through said reaction vessel;

More than one stirring blade, which are set on the rotating shaft in said reaction vessel preferably in such a manner: said stirring blades are vertically disposed on said rotating shaft at intervals and slants with respect to the direction of the rotating shaft; and

A power mechanism, which is connected with one end of the horizontal rotating shaft outside of the reaction vessel and is designed to drive said rotating shaft to rotate, wherein said driving device is preferably a motor.

3. The device for biogenic waste treatment according to Claim 2, wherein a shaft seal device is set on the position where said rotating shaft is connected with said reaction vessel so as to seal this position where said rotating shaft is connected with said reaction vessel; said shaft seal device comprising:

A fixing member, which is fitted on said rotating shaft and is in fixed connection with said reaction vessel;

A gasket, which is fitted between said rotating shaft and said fixing member; and

A gland, which is fitted on said rotating shaft, pressed on said gasket and is connected with said fixing member.

Preferably, a plurality of said gaskets are fitted on said rotating shaft one overlapping the other.

4. The device for biogenic waste treatment according to Claim 3, wherein an elastic element is provided on the position where said gland is connected with said fixing member, wherein said elastic element is preferably a spring or an oil buffer.

5. The device for biogenic waste treatment according to any one of Claims 1-4, characterized in that said pressure reducing regulator is a pressure reducing valve;

In said separation device, said liquid-solid separator, said solid collecting tank and said liquid collecting tank are a first-stage separation device;

Said separation device further comprises a second-stage separation device, which is connected with said first-stage separation device and/or said reaction vessel and is designed to perform the secondary separation for the products output by said reaction vessel and/or the products separated from said first-stage separation device so as to obtain the final product.

6. The device for biogenic waste treatment according to Claim 5, wherein a first heat exchanger is provided between said liquid solid separator and said pressure-reducing regulator and is designed to maintain the temperature of the low-molecularized mixture for liquid solid separation to be equivalent to the temperature for conducting the low-molecularization;

preferably, a second heat exchanger is provided between said liquid solid separator and said liquid collecting tank, and is intended to condense the liquid output from said liquid solid separator; said first heat exchanger or the second heat exchanger being designed as shell-and-tube heat exchanger, immersing heat exchanger, coil pipe heat exchanger or serpentine type heat exchanger.

7. The device for biogenic waste treatment according to Claim 6, wherein said second-stage separation device is selected from centrifugal separation device, static separation device, pressurized separation device, pressure separation device, membrane treatment device or any combination of them.

8. The device for biogenic waste treatment according to Claim 1, wherein a plurality of said reaction vessels are provided in parallel, and the number of the stirring devices, the vapor input devices and the pressure-reducing regulators connected with said reaction vessels corresponds to the number of said reaction vessels.