【Claims】

【Claim 1】

A biomolecule extraction device, comprising:

an insertion part to which a sample containing collected biomass is fixed;

a body part which receives a lysis buffer inside and into which the insertion part is inserted to extract biomolecule from the collected biomass; and

at least one discharge part provided at the insertion part or the body part,

characterized in that the sample is collected by a tape or membrane, and

in that the insertion part comprises at least one fixing part to which the sample is fixed.

【Claim 3】

The biomolecule extraction device according to claim 1,

characterized in that the fixing part fixes the sample by adhesive bonding or physical bonding.

【Claim 4】

The biomolecule extraction device according to claim 3,

characterized in that the adhesive bonding of the fixing part is performed by using the adhesiveness present in the collected sample or applying an adhesive substance to the fixing part.

【Claim 5】

The biomolecule extraction device according to claim 3,

characterized in that at least part of the fixing part is in a bent curved shape.

【Claim 6】

The biomolecule extraction device according to claim 3,

characterized in that physical bonding of the fixing part fixes the sample by insertion bonding.

【Claim 7】

The biomolecule extraction device according to claim 1,

characterized in that at least part of the sample is fixed to the fixing part.

【Claim 8】

The biomolecule extraction device according to claim 1,

characterized in that the body part comprises a chamber having a predetermined space formed inside for receiving the lysis buffer and into which the insertion part is inserted and the lysis buffer is immersed.

【Claim 9】

The biomolecule extraction device according to claim 8,

further comprising a shielding film sealing the entrance of the chamber, characterized in that the lysis buffer is received in the chamber in a sealed condition.

【Claim 10】

The biomolecule extraction device according to claim 8,

characterized in that the body part further comprises an introduction part guiding the insertion part to the chamber.

【Claim 11】

The biomolecule extraction device according to claim 10,

characterized in that the insertion part comprises a sealing part formed in a form corresponding to the introduction part and having a close contact with the inner wall of the introduction part to seal the chamber.

【Claim 12】

The biomolecule extraction device according to claim 11,

characterized in that when the introduction part (230) and the sealing part (130) are cut horizontally, the cross sections of the introduction part and the sealing part are formed in an oval or circular shape.

【Claim 13】

The biomolecule extraction device according to claim 11,

characterized in that the sealing part comprises a reinforcing rib for reinforcing strength thereof.

【Claim 14】

The biomolecule extraction device according to claim 1,

characterized in that the discharge part comprises a discharge flow path and an expanded discharge port for constantly discharging the sample.

【Claim 15】

The biomolecule extraction device according to claim 14,

characterized in that the discharge flow path has an inner diameter smaller than the discharge port in order to minimize dead space.

【Claim 16】

The biomolecule extraction device according to claim 14,

further comprising a sealing cap detachably sealing the discharge part.

【Claim 17】

The biomolecule extraction device according to claim 8,

further comprising a pressing part being formed at the outer wall of the chamber and applying pressure allowing constant discharge of the sample.

【Claim 18】

The biomolecule extraction device according to claim 17,

characterized in that the pressing part is formed in an embossed form having a thickness greater than that of the surrounding outer wall.

【Claim 19】

The biomolecule extraction device according to claim 17,

further comprising an engraved part being formed around the pressing part and having a thickness smaller than the surrounding outer wall.

【Claim 20】

The biomolecule extraction device according to claim 1,

characterized in that a ratio between the surface area of the sample in contact with the lysis buffer and the volume of the lysis buffer is from 0.4 to 9.15.

【Claim 21】

A method for extracting biomolecule, comprising:

fixing a sample containing collected biomass to an insertion part;

inserting the insertion part into the body part receiving lysis buffer inside; and

discharging biomolecule extracted from the biomass through a discharge part provided at any one of the insertion part or the body part,

characterized in that the sample is collected by a tape or membrane, and

in that the insertion part comprises at least one fixing part to which the sample is fixed

【Claim 22】

The method according to claim 21,

characterized in that the sample is fixed to the insertion part by adhesive bonding or physical bonding.

【Claim 23】

The method according to claim 21,

characterized in that the sample has a ratio between the surface area of the sample in contact with the lysis buffer and the volume of the lysis buffer is from 0.4 to 9.15.