What is claimed is:

1. A sewage/wastewater treatment system using granular activated sludge and a membrane bio-reactor, the system comprising:

an indirect aeration tank adapted to supply air thereto to allow dissolved oxygen contained in raw water to reach a saturation concentration;

a granulation tank adapted to allow floating microorganisms contained in treated water passing through the indirect aeration tank to be granulated and have a sludge blanket formed thereon; and

submerged movable membranes located in an upper portion of the granulation tank adapted to be movable in the granulation tank,

wherein the granulation tank includes an agitator adapted to agitate the granular activated sludge blanket using a single motor for driving the submerged movable membranes in the granulation tank.

2. The sewage/wastewater treatment system according to claim 1, wherein the granulation tank is adapted to produce gelatin as by-product of contact of the floating microorganisms,

to apply a first hydrodynamic force caused by the treated water conveyed from the indirect aeration tank, and to apply a second hydrodynamic force caused by the agitator of the granulation tank.

3. The sewage/wastewater treatment system according to claim 1, wherein the agitator is disposed inside the granulation tank.

4. The sewage/wastewater treatment system according to claim 1, wherein the movable membranes include low pressure microfiltration MF membranes or ultrafiltration UF membranes.

5. The sewage/wastewater treatment system according to claim 1, further comprising a partitioning wall that divides an interior of the granulation tank into upper and lower portions.

6. The sewage/wastewater treatment system according to claim 5, wherein the partitioning wall includes a porous member or inclined plates arranged at intervals.

7. The sewage/wastewater treatment system according to claim 1, further comprising a reciprocating device adapted to reciprocate the movable membranes in the granulation tank.

8. The sewage/wastewater treatment system according to claim 7, wherein the reciprocating device comprises:

the single motor;

sliding frames reciprocatingly connected to the movable membranes; and

rotors connected to the sliding frames by rotational shafts;

wherein the single motor is adapted to rotate the rotors and to convert rotational motion of the rotors into reciprocating motions of the sliding frames through the shafts connected to the sliding frames.

9. The sewage/wastewater treatment system according to claim 8, wherein the reciprocating device further comprises buffers disposed between the sliding frames and the shafts.

10. The sewage/wastewater treatment system according to claim 8, wherein the sliding frames are varied along sliding rails on which linear bearings and shaft-supports are disposed.

11. The sewage/wastewater treatment system according to claim 1, wherein the movable membranes are adapted to

selectively or continuously move while supernatant liquid in the granulation tank is filtered.

12. A sewage/wastewater treatment system using a granular activated sludge blanket and submerged movable membranes, the system comprising:

an indirect aeration tank adapted to supply air to the indirect aeration tank and to treat raw water by allowing dissolved oxygen contained in the raw water to reach a saturation concentration;

a granulation tank adapted to allow floating microorganisms contained in treated water passing through the indirect aeration tank to be granulated and form the granular activated sludge blanket in a lower portion of the granulation tank;

the submerged movable membranes located in an upper portion of the granulation tank and adapted to be movable in the upper portion of the granulation tank; and

an auxiliary water circulation line adapted to allow the treated water passing through the granular activated sludge blanket to be circulated again from the upper portion of the granulation tank directly to the lower portion of the granulation tank.

13. The sewage/wastewater treatment system according to claim 12, wherein the auxiliary water circulation line is adapted to circulate the treated water by a force generated from movements of the movable membranes.

14. A sewage/wastewater treatment method using granular activated sludge and a membrane bio-reactor, the method comprising:

supplying air to raw water containing pollutants therein to aerate the raw water;

granulating floating microorganisms contained in treated water in which dissolved oxygen is in a saturated state through the aeration; and

filtering supernatant liquid except the granulated sludge in the granulation step through movable membranes and discharging the supernatant liquid to the outside,

wherein in the granulation step, a sludge blanket formed by the granulated floating microorganisms is agitated with a single motor, driving the movable membranes.

15. The sewage/wastewater treatment method according to claim 14, wherein

the granulation in the granulation step is conducted by gelatin as a by-product generated by the contact of the floating microorganisms, and

the granulation includes applying a first hydrodynamic force caused by the treated water conveyed through the aeration

and a second hydrodynamic force caused by the agitation in the granulation step.

16. The sewage/wastewater treatment method according to claim 14, wherein a granulation tank, in which the granulation step and the filtration step are carried out, comprises a partitioning wall that divides an interior of the granulation tank into upper and lower portions.

17. The sewage/wastewater treatment method according to claim 15, wherein the second hydrodynamic force is provided by an agitator disposed inside the granulation tank or an auxiliary water circulation line adapted to allow treated water passing through the sludge blanket to be circulated again from the upper portion of the granulation tank to a lower portion of the granulation tank.

18. The sewage/wastewater treatment method according to claim 16, wherein the partitioning wall includes a porous member or inclined plates arranged at intervals.