WHAT IS CLAIMED IS:

1. A method for saccharifying or liquefying a material comprising:

saccharifying a biomass feedstock in a vessel while mixing with a jet mixer, the biomass feedstock having been dispersed in a liquid medium using a dispersing system that draws the feedstock and liquid medium out of the vessel and recirculates the feedstock and liquid medium back into the vessel, wherein the initial solids concentration of the biomass feedstock dispersed in the liquid medium is at least 20% by weight, and the method further includes adding additional feedstock and a saccharifying agent to the vessel during saccharification and dispersing the feedstock in the medium using the dispersing system.

2. The method according to claim 1 wherein the dispersing system comprises a chamber and, within the chamber, a rotating member which draws the feedstock and liquid medium into the chamber axially and expels a dispersion of the feedstock in the medium from the chamber radially.

3. The method according to claim 2 wherein the rotating member functions as an impeller and the action of the rotating member within the chamber is that of a centrifugal pump.

4. The method according to claim 2 or 3 wherein the rotating member comprises mixing elements arranged coaxially with a rotor that is disposed in rotor-stator relationship with a side wall of the chamber.

5. The method according to any one of claims 1-4 wherein the dispersing system comprises a positive displacement pump.

6. The method of claim 5 wherein the positive displacement pump comprises a progressive cavity pump.

7. The method according to any one of claims 1-6 wherein the feedstock has a bulk density of less than about 0.75 g/cm^3.

8. The method according to any one of claims 1-7 wherein the liquid medium comprises water.

9. The method according to any one of claims 1-8 further comprising delivering a saccharifying agent to the vessel.

10. The method according to claim 9 wherein the saccharifying agent comprises an enzyme.

11. The method according to any one of claims 1-10 wherein the dispersing system comprises a jet mixer.

12. The method according to any one of claims 1-11 further comprising delivering the feedstock and/or a saccharifying agent to the vessel from a source disposed outside the vessel.

13. The method according to claim 12 wherein the source is positioned above the vessel.

14. The method according to claim 12 or 13 wherein the source comprises a hopper and the hopper is in communication with a vibrating device.

15. The method according to any one of claims 1-14 further comprising delivering a stream of liquid medium onto the feedstock on the surface of the liquid medium to wet the feedstock.

16. The method according to claim 15 wherein the feedstock is in a substantially dry condition prior to delivery to the vessel.

17. The method according to any one of claims 1-16 wherein the dispersing system comprises a plurality of dispersing devices.

18. The method according to any one of claims 1-17 wherein saccharifying comprises adding the feedstock to the liquid medium in discrete increments; and dispersing each discrete increment of feedstock into the liquid medium with the dispersing system before adding another increment of feedstock.

19. The method according any one of claims 1-18 further comprising monitoring a glucose level of a mixture of the feedstock, the liquid medium and the saccharifying agent during saccharification.

20. The method according to any one of claims 1-19 wherein the vessel comprises a tank.

21. The method according to any one of claims 1-20 wherein the feedstock comprises a cellulosic or lignocellulosic material.

22. The method according to any one of claims 1-21 further comprising adding an emulsifier or surfactant to the mixture in the vessel.

23. A method according to claim 1 substantially as herein before described with reference to the examples.

WHAT IS CLAIMED IS:

1. A method comprising:

saccharifying a biomass feedstock in a vessel, the biomass feedstock having been dispersed in a liquid medium using a dispersing system that draws the feedstock and liquid medium out of the vessel and recirculates the feedstock and liquid medium back into the vessel.

2. The method of claim 1 wherein the dispersing system comprises a chamber and, within the chamber, a rotating member which draws the feedstock and liquid medium into the chamber axially and expels a dispersion of the feedstock in the medium from the chamber radially.

3. The method of claim 1 or 2 wherein the dispersing system comprises a positive displacement pump.

4. The method of any one of the above claims wherein the feedstock has a bulk density of less than about 0.75 g/cm^3.

5. The method of any one of the above claims wherein the liquid medium comprises water.

6. The method of any of the above claims further comprising delivering a saccharifying agent to the vessel.

7. The method of claim 6 wherein the saccharifying agent comprises an enzyme.

8. The method of claim 2 wherein the rotating member functions as an impeller and the action of the rotating member within the chamber is that of a centrifugal pump.

9. The method of any of the above claims further comprising mixing with a jet mixer during saccharification.

10. The method of claim 2 wherein the rotating member comprises mixing elements arranged coaxially with a rotor that is disposed in rotor-stator relationship with a side wall of the chamber.

11. The method of any of the above claims wherein the dispersing system further comprises a jet mixer.

12. The method of any of the above claims further comprising delivering the feedstock and/or a saccharifying agent to the vessel from a source disposed outside the vessel.

13. The method of claim 12 wherein the source is positioned above the vessel.

14. The method of any one of the above claims further comprising delivering a stream of liquid medium onto the feedstock on the surface of the liquid medium to wet the feedstock.

15. The method of any one of the above claims wherein the feedstock is in a substantially dry condition prior to delivery to the vessel.

16. The method of claim 12 wherein the source comprises a hopper and the hopper is in communication with a vibrating device.

17. The method of any one of the above claims wherein the dispersing system comprises a plurality of dispersing devices.

18. The method of any one of the above claims wherein saccharifying comprises

adding the feedstock to the liquid medium in discrete increments; and

dispersing each discrete increment of feedstock into the liquid medium with the dispersing system before adding another increment of feedstock.

19. The method of any one of the above claims further comprising monitoring a glucose level of a mixture of the feedstock, the liquid medium and the saccharifying agent during saccharification.

20. The method of any one of the above claims further comprising adding additional feedstock and saccharifying agent to the vessel during saccharification and dispersing the feedstock in the medium using the dispersing system.

21. The method of any one of the above claims wherein the vessel comprises a tank.

22. The method of any one of the above claims wherein the feedstock comprises a cellulosic or lignocellulosic material.

23. The method of any one of the above claims further comprising adding an emulsifier or surfactant to the mixture in the vessel.

24. The method of claim 3 wherein the positive displacement pump comprises a progressive cavity pump.

25. A feedstock saccharification system comprising:

a tank,

a delivery system configured to deliver a biomass feedstock and a liquid medium to the tank,

a dispersing system configured to disperse the biomass feedstock in the liquid medium,

a saccharifying agent delivery device configured to deliver a metered amount of a saccharifying agent to the tank, and

a mixer configured to mix the contents of the tank.

26. The system of claim 25 wherein the dispersing system is configured to draw the feedstock and liquid medium out of the tank and recirculate it back into the tank.

27. The system of claim 26 wherein the dispersing system comprises a chamber and, within the chamber, a rotating member which draws the feedstock and liquid medium into the chamber axially and expels a dispersion of the feedstock in the medium from the chamber radially.

28. The system of claim 26 wherein the dispersing system comprises a positive displacement pump.

29. The system of any one of the above claims further comprising a controller that adjusts the operation of the feedstock delivery device and/or the saccharifying agent delivery device based on input from the torque monitor.

30. The system of any one of the above claims wherein the mixer comprises a jet mixer.

31. The system of any one of the above claims wherein the dispersing system is configured to deliver a stream of liquid onto the feedstock on the surface of the liquid, wetting the feedstock.