WHAT IS CLAIMED IS:

1. A method comprising:

irradiating a lignocellulosic material with an electron beam emitted from a self-shielded electron beam device operating at a voltage of less than 3 MeV and a power of at least 60 kW, and

combining the irradiated lignocellulosic material with an enzyme and/or a microorganism, the enzyme and/or microorganism utilizing the irradiated lignocellulosic material to produce a product.

2. The method of claim 1 wherein the electron beam operates at a voltage of less than 1 MeV.

3. The method of claim 1 or 2 further comprising soaking the irradiated lignocellulosic material in water at a temperature of at least 40°C prior to combining the irradiated lignocellulosic material with the enzyme and/or microorganism.

4. The method of any one of the above claims wherein irradiating is performed at a dose rate of at least 0.5 Mrad/sec.

5. The method of any one of the above claims wherein the lignocellulosic material comprises corncobs.

6. The method of any one of the above claims wherein the lignocellulosic material comprises a mixture of corncobs, corn kernels and corn stalks.

7. A method comprising:

irradiating a lignocellulosic material with an electron beam emitted from a self-shielded electron beam device,

soaking the irradiated lignocellulosic material in water at a temperature of at least 40°C, and

combining the irradiated lignocellulosic material with an enzyme and/or a microorganism, the enzyme and/or microorganism utilizing the irradiated lignocellulosic material to produce a product.

8. The method of claim 7 wherein the electron beam operates at a voltage of less than 3 MeV and a power of at least 150 kW.

9. The method of claim 7 or 8 wherein irradiating is performed at a dose rate of at least 0.5 Mrad/sec.

10. The method of any one of claims 7-9 wherein the lignocellulosic material comprises corncobs.

11. The method of any one of claims 7-10 wherein the lignocellulosic material comprises a mixture of corncobs, corn kernels and corn stalks.

12. The method of any one of claims ~~7-11~~ 7-11 wherein soaking is performed for at least 2 hours.

13. The method of claim 12 wherein soaking is performed for at least 6 hours.

14. The method of any one of claims 7-13 further comprising wet milling the lignocellulosic material before, during or after soaking.

15. A method comprising:

irradiating a lignocellulosic material with an electron beam emitted from a self-shielded electron beam device at a dose rate of at least 0.5 Mrad/sec, wherein the electron beam operates at a voltage of less than 1 MeV, and

combining the irradiated lignocellulosic material with an enzyme and/or a microorganism, the enzyme and/or microorganism utilizing the irradiated lignocellulosic material to produce a product.

16. The method of claim 15 further comprising soaking the irradiated lignocellulosic material in water at a temperature of at least 40°C prior to combining the irradiated lignocellulosic material with the enzyme and/or microorganism.

17. The method of claim 15 or 16 wherein the electron beam operates at a power of at least 150 kW.

18. The method of any one of claims 15-17 wherein the lignocellulosic material comprises corncobs.

19. The method of any one of claims 15-18 wherein the lignocellulosic material comprises a mixture of corncobs, corn kernels and corn stalks.

20. A method comprising:

irradiating a lignocellulosic material with an electron beam emitted from a self-shielded electron beam device, the lignocellulosic material comprising corn cobs, corn kernels, and corn stalks, and

combining the irradiated lignocellulosic material with an enzyme and/or a microorganism, the enzyme and/or microorganism utilizing the irradiated lignocellulosic material to produce a product.

21. The method of claim 20 further comprising obtaining the lignocellulosic material by harvesting entire corn plants.

22. The method of claim 20 or 21 further comprising soaking the irradiated lignocellulosic material in water at a temperature of at least 40°C prior to combining the irradiated lignocellulosic material with the enzyme and/or microorganism.

23. The method of any one of claims 20-22 wherein the electron beam operates at a voltage of less than 3 MeV and a power of at least 150 kW.

24. The method of any one of claims 20-23 wherein irradiating is performed at a dose rate of at least 0.5 Mrad/sec.

25. The ~~A~~ method of claim 4, further comprising:

~~irradiating a lignocellulosic material at a dose rate of at least 0.5 Mrad/sec, with an electron beam operating at a voltage of less than 3 MeV and a power of at least 60 kW,~~ transferring the irradiated lignocellulosic material to a tank, and dispersing the lignocellulosic material in an aqueous medium in the tank, before the combining step; and

wherein the combining step comprises maintaining the contents of the tank under conditions effective for the enzyme and/or microorganism to saccharify ~~saccharifying~~ the irradiated lignocellulosic material, while agitating the contents of the tank with a jet mixer.

26. The method of claim 25, further comprising, after saccharification, fermenting the contents of the tank, without removing the contents from the tank, to produce an alcohol.

27. The method of claim 25 or 26, further comprising, after saccharification, isolating sugars from the contents of the tank.

28. The method of any one of claims 25-27 further comprising hammermilling the lignocellulosic material prior to irradiating.

29. The method of any one of claims 25-28 wherein the lignocellulosic material comprises corncobs.

30. The method of any one of claims 25-29 wherein irradiating comprises delivering to the lignocellulosic material a total dose of from about 25 to 35 Mrads.

31. The method of any one of claims 25-30 wherein irradiating comprises multiple passes of irradiation, each pass delivering a dose of 20 Mrads or less.

32. The method of any one of claims 25-31 further comprising soaking the irradiated lignocellulosic material in water at a temperature of at least 40°C prior to combining the irradiated lignocellulosic material with the microorganism.

33. The ~~A~~ method of any one of the above claims, wherein the irradiated ~~comprising:~~

~~irradiating a~~ lignocellulosic material ~~with an electron beam, the lignocellulosic material comprising corn cobs and having~~ has a particle size of less than 1 mm~~, and~~

~~combining the irradiated lignocellulosic material with an enzyme and/or a microorganism, the enzyme and/or microorganism utilizing the irradiated lignocellulosic material to produce a product~~.