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~~

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.

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.~~

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

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

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

~~7~~**6.** 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~~7. The method of claim ~~7~~ 6 wherein the electron beam operates at a voltage of less than 3 MeV and a power of at least 150 kW.

~~9~~8. The method of claim ~~7~~ 6 or ~~8~~ 7 wherein irradiating is performed at a dose rate of at least 0.5 Mrad/sec.

~~10~~9. The method of any one of claims ~~7~~6-~~9~~ 8 wherein the lignocellulosic material comprises corncobs.

~~11~~10. The method of any one of claims ~~7~~6-~~10~~ 9 wherein the lignocellulosic material comprises a mixture of corncobs, corn kernels and corn stalks.

~~12~~11. The method of any one of claims ~~7~~6-~~11~~ 10 wherein soaking is performed for at least 2 hours.

~~13~~12. The method of claim ~~12~~ 11 wherein soaking is performed for at least 6 hours.

~~14~~13. The method of any one of claims ~~7~~6-~~13~~ 12 further comprising wet milling the lignocellulosic material before, during or after soaking.

~~15~~14. 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~~

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.

~~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~~15. The method of claim ~~15~~ 14 ~~or 16~~ wherein the electron beam operates at a power of at least 150 kW.

~~18~~16. The method of ~~any one of~~ claims ~~15-17~~14 or 15 wherein the lignocellulosic material comprises corncobs.

~~19~~17. The method of any one of claims ~~15~~14-~~18~~ 16 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~~18. ~~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, wherein the aqueous medium is at a temperature of at least 40°C ~~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~~ saccharifying the irradiated lignocellulosic material, while agitating the contents of the tank with a jet mixer.

~~26~~19. The method of claim ~~25~~18, further comprising, after saccharification, fermenting the contents of the tank, without removing the contents from the tank, to produce an alcohol.

~~27~~20. The method of claim ~~25~~ 18 or ~~26~~19, further comprising, after saccharification, isolating sugars from the contents of the tank.

~~28~~21. The method of any one of claims ~~25~~18-~~27~~ 20 further comprising hammermilling the lignocellulosic material prior to irradiating.

~~29~~22. The method of any one of claims ~~25~~18-~~28~~ 21 wherein the lignocellulosic material comprises corncobs.

~~30~~23. The method of any one of claims ~~25~~18-~~29~~ 22 wherein irradiating comprises delivering to the lignocellulosic material a total dose of from about 25 to 35 Mrads.

~~31~~24. The method of any one of claims ~~25~~18-~~30~~23 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~~25. The method of any one of the above claims, wherein the irradiated lignocellulosic material has a particle size of less than 1 mm.