CLAIMS

What is claimed is:

1. A method of producing enzymes tailored to saccharify a particular cellulosic or lignocellulosic biomass, the method comprising:

selectively combining a cellulolytic microorganism with a first quantity of a particular cellulosic or lignocellulosic biomass, which has been treated by bombardment with electrons to reduce its recalcitrance; and

maintaining the cellulolytic microorganism-biomass combination under conditions that cause the first quantity of the particular cellulosic or lignocellulosic biomass to induce the cellulolytic microorganism to produce a cellulase complex comprising one or more enzymes tailored to saccharify a second quantity of the particular cellulosic or lignocellulosic biomass which has been treated by bombardment with electrons to reduce its recalcitrance, the relative concentration of the one or more enzymes being modulated by selection of the particular dose of bombardment with electrons, the particular dose effecting the crystallinity of polymers in the first quantity of the particular cellulosic or lignocellulosic biomass.

2. The method of claim 1, further comprising saccharifying the second quantity of the particular cellulosic or lignocellulosic biomass with the cellulase complex, wherein the cellulase complex exhibits an enhanced activity attributable, at least in part, to endoglucanase derived from the level of crystalline cellulose in the first quantity of the particular lignocellulosic material.

3. The method of claim 2 wherein the cellulosic or lignocellulosic biomass is lignocellulosic.

4. The method of claim 1, 2 or 3, wherein the first quantity of the particular cellulosic or lignocellulosic biomass and/or the second quantity of the particular cellulosic or lignocellulosic biomass has been treated to reduce its recalcitrance by a treatment method selected from the group consisting of: sonication, oxidation, pyrolysis, steam explosion, chemical treatment, mechanical treatment, and freeze grinding.

5. The method of claim 1, 2, 3, or 4, wherein the dose of bombardment with electrons applied to the first quantity of the particular cellulosic or lignocellulosic biomass is selected from the range of 2 to 50 Mrad.

6. The method of any of the above claims, further comprising mechanically treating the first quantity of the particular cellulosic or lignocellulosic biomass and/or the second quantity of the

20. The method of any one of the above claims, wherein the cellulosic or lignocellulosic biomass is combined with the cellulolytic microorganism when the cellulolytic microorganism is in a lag phase.

21. The method of any one of the above claims, further comprising concentrating the one or more enzymes and storing the one or more enzymes for subsequent saccharification of the second quantity of the particular cellulosic or lignocellulosic biomass.

22. A composition comprising: a liquid medium, a first quantity of a particular cellulosic or lignocellulosic biomass having been treated with a particular dose of bombardment electrons to reduce its recalcitrance, a cellulolytic microorganism, and a cellulase complex comprising one or more enzymes made by the cellulolytic microorganism, the relative concentrations of the one or more enzymes having been modulated by selection of the particular dose of bombardment with electrons and thereby being tailored to saccharify a second quantity of the particular cellulosic or lignocellulosic biomass.