Industrial Bioprocessing. Regulators OK Biofungicide; Lipase Manufacture; Plants Make Own Biomass Hydrolysis Enzymes. Taken from the subscription: Technical Insights' Industrial Bioprocessing Alert (2001-present day)
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PRODIGENE PLANTS MAKE BIOMASS HYDROLYSIS ENZYMES ProdiGene Inc. is developing transgenic plants to produce products, such as laccase for bleaching; trypsin for leather tanning; and redox enzymes for use in the wood products industry. In addition to these enzymes, it has also investigated producing gelatin, now obtained from animal bones and hides, commercially in genetically engineered plants (IB 6/14/02). Patent Cooperation Treaty international patent application WO 03/049538 has just appeared covering ProdiGene's technology to produce enzymes for the hydrolysis of polysaccharides in lignocellulosic biomass in plants. High cost of these enzymes has been a major barrier to commercialization of this route to manufacture ethanol from crop residues, wood waste, and other forms of cheap biomass.

One way this technology could be used would be to genetically engineer maize plants so that they produce cellulase, xylanase, or other enzymes that convert polysaccharide polymers into fermentable sugars, in the germ (embryo) tissue of their seeds. Rather than harvest the ears of corn and their seeds separately, leaving the remainder of the plant, the entire plant would be harvested at once.

The corn seeds would be separated to recover the starch for use in making ethanol through existing technology or for other uses. The tissues containing the saccharification enzymes would be mixed with the remaining plant biomass to break down the carbohydrate polymers into fermentable sugars. Microorganisms would then use these sugars to produce ethanol or other products.

ProdiGene has a half dozen issued US Patents. They cover production of protein from seed and vaccines, proteases, and beta-glucuronidase produced in transgenic plants,

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Sensitive info: