

**SOUTHEAST BIOPHARM LABS**

## Green Plants as Biofactories for Drugs

Genetic engineering has added a new pathway to the manufacturing of fine and specialty chemicals— green plants. You can custom-design a green plant to produce a desired product in its seed, leaves, fruit, root, or sap to yield a plant that functions independently as a miniature biofactory.

Plants have long been a source of human therapeutics. Some of these are: morphine from poppies, birth control agents from the Mexican yam, digitalis from the foxglove plant and paclitaxel from the Pacific yew tree. Producing foreign proteins was demonstrated less than 20 years ago, when human growth hormone was expressed in tobacco cells in 1986. We now have a host of such proteins and chemical products, antibodies, vaccines, and other metabolites.

A major concern is keeping medical crops from contaminating food supplies. Past incidents of food crop contamination by foreign proteins that were not approved for food use (StarLink and Prodigene), resulted in significant costs and liabilities, even when

the contamination was not a defined health threat.

Palm Beach, California is the leading area for the Milken Institute biopharmaceutical lab to produce drugs from plants with Florida, North Carolina, and the Southeast not far behind. Biotechnology and the broader biopharm industry, focuses on biologically derived drugs. "Austin has hyped themselves a lot; they've been very successful at promotion," DeVol said.

Editorial comment: Genetic drift down on the farm could put drug-producing genes in your grocery store! (Excerpted by permission from "Southeast Fast Becoming a Biopharm Lab," Bob Keefe, Cox News Service. August, 2004

<http://www.miami.com>

"Green Plants as Biofactories for Drugs", James E. Flinn, Oct 23, 2004, [www.bioharminternational.com](http://www.bioharminternational.com)