

DEPARTMENT

of Biochemistry and Molecular Biology:

A Better Understanding of Plants and Animals

MAFES research during the past year in the Department of Biochemistry and Molecular Biology has been concentrated in the areas of plant and animal stress response, plant development, and plant molecular biology and microbiology.

Stress response research is divided into two different areas: work with plants and with animals. In the plant area, scientists in the department are working to isolate and characterize genes responsible for producing heat-shock proteins from a variety of plants. Comparison of the proteins from heat-tolerant and non-tolerant plants should reveal their function during periods of high temperature stress. The scientists also have found a unique proteinase involved in providing corn resistance to attacks by certain caterpillar varieties. In addition, researchers in the department are working out the details of how an immune system modulator can help prepare animals to better respond to the stress caused by disease organisms.

Plant development research includes work to better understand the development of cotton fiber by examining specific cotton genes and the elements that control those genes. They recently identified a DNA sequence that causes expression in fiber cells.

In the area of plant molecular biology and microbiology, MAFES scientists are using the new technology of proteomics to analyze the differences in protein composition between aflatoxin resistant and susceptible corn lines. Work also is under way with genetic manipulation of plant genes to improve lipid production as part of efforts to develop diesel fuel from plants.



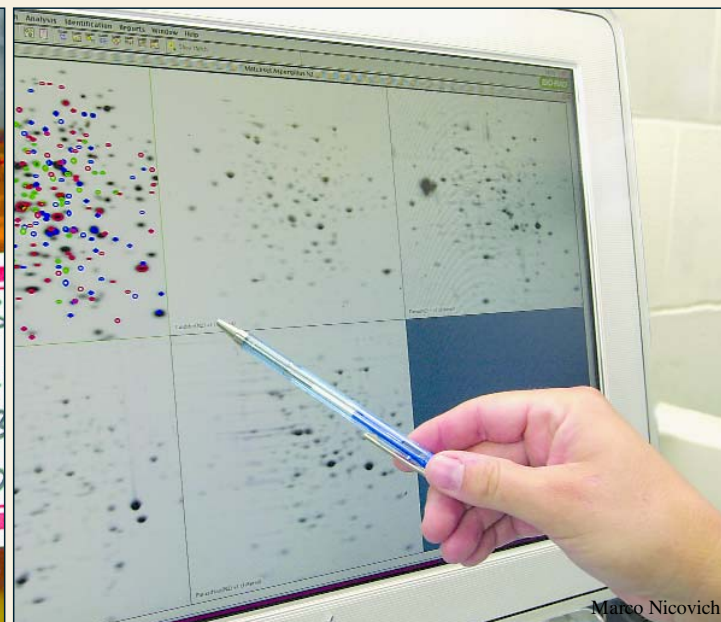
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