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## Interior Plants: Can They Protect Us from Bioterrorist Threats?

By MJ Gilhooley

June Medford recently came up with the idea of using tiny plants as weapons in the war against terrorism.

Now armed with a half-million-dollar grant from the Pentagon, the plant biologist from Colorado State University, Fort Collins, CO, is trying to genetically engineer *Arabidopsis* (a relative of the mustard plant) to change color rapidly if it senses a biological or chemical agent. Medford's laboratory is among several across the country where scientists are developing innovative ways to respond to terrorist attacks. Already, plants have successfully demonstrated their ability to defend a building in case of a bioterrorism attack through its ventilation ducts.

Dr. B.C. Wolverton, PhD, Picayune, MS, a former scientist with the Department of Defense (DOD), indicates that the most likely approach terrorists might use in a bioterrorist attack is to employ an aerosolizer to release biological and chemical warfare agents into a

building's ventilation ducts.

According to Wolverton, scientists have made many discoveries during the last 30 years, leading to an understanding of how plants can purify both plants and water. DOD studies showing plant ecosystems' abilities to remove toxic chemicals from contaminated water were first published in 1973. NASA published studies in 1984 showing how interior plants could remove volatile organic chemicals (VOCs) from sealed test chambers.

Scientists in Germany, Australia, and Japan have recently confirmed these findings and added new knowledge to the field. There is now sufficient scientific evidence to support the concept of using interior plants to clean the air in hermetically sealed buildings having little or no mechanical ventilation.

Wolverton points out that hospitals in Japan are adding plants to take advantage of their air-cleaning properties. In many instances, existing buildings such as these need only modifications to their HVAC systems to create a closed internal air-recirculating system, thus reducing their vulnerability to

bioterrorism. Additionally, high-efficiency, plant-based filters can increase internal air purification.

Wolverton further states that high-efficiency, plant-based filters employ the adsorption properties of activated carbon, germicidal irradiation of ultraviolet light, and chemical-degrading properties of plants and their root microbes to create a bioregenerating (self-sustaining) filter system. This process increases the filtering ability of each plant by several hundred times.

Now that threats of terrorist attacks have become a reality of everyday life, the ability of interior plants to protect against bioterrorist threats should not be ignored.

*MJ Gilhooley is the marketing director for the Los Angeles-based Plants at Work organization. For more information, visit [www.wolvertonenvironmental.com](http://www.wolvertonenvironmental.com) or [www.plantsatwork.org](http://www.plantsatwork.org).*