Changing smell of plants announces fungus attack

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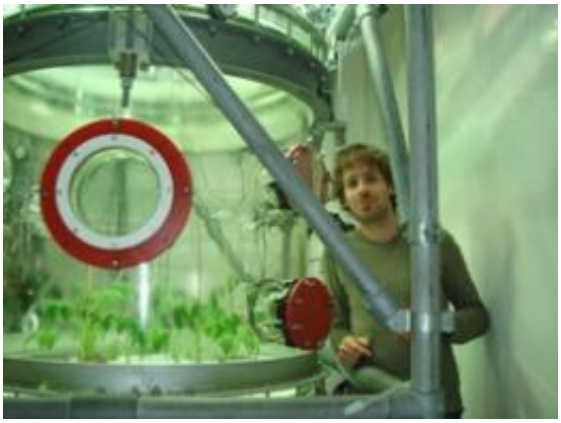

(PhysOrg.com) -- Tomato plants under attack from the Botrytis fungus give off an aromatic substance that can be measured in greenhouses. This is the result of research performed by Roel Jansen with which he obtained his doctoral degree at Wageningen University on Friday 9 October. Working within a team of scientists from Wageningen and Germany, Jansen has opened the door to a new way of preventing and managing disease and plague problems in greenhouse horticulture.

The Dutch greenhouse sector is working hard to minimise the use of chemical pesticides, for instance by performing detailed crop inspections so as to reduce spraying. This type of detection work is time-consuming and expensive, however. It increases the demand for automated

detection of infected plants, preferably at a very early stage of the disease or plague process.

One possible principle is to measure plant odours in the air. Wageningen scientists have already shown that plants under attack by insects emit aromatic substances that attract insect eaters.

Botrytis is an important disease in global tomato cultivation. Through a series of tests, Roel Jansen, an employee at Wageningen UR Greenhouse Horticulture, showed that tomato plants infected by Botrytis fungus give off more methyl salicylate into the greenhouse air. Often the plants emit sufficient amounts of this hormone substance for it to be measurable in the air.

Jansen expects a demand for detection systems that indicate signal substances such as methyl salicylate. "If you can identify a plague in a greenhouse on time there will be even less need for pesticides," he says. "The trend in greenhouse horticulture is for fewer but larger greenhouses. An outbreak of a disease or plague therefore forms an even greater threat as it can easily spread throughout the entire greenhouse."

Jansen performed his research in close cooperation with the Agricultural Business Economics, Plant Physiology and Organic Chemistry chair groups at Wageningen University and the Jülich Forschungszentrum in Germany.

Provided by Wageningen University