

VC Professor Deepak Pental (2005 – 2010) makes scientific breakthrough



Professor Deepak Pental

D o Genetics

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2000 - 2005

New Delhi : Scientists at Delhi University have claimed to have increased Bt cotton's level of resistance to pests, by combining two genes which improve its production of Bt toxins.

When the two genes are combined in a cotton plant, the amount of Bt toxins produced by it goes 4 to 5 times higher than the current variety -- a development that can prove crucial in dealing with insect attacks that may increase because of global warming, according to the scientists. "Insects are notorious for developing resistance to chemical pesticides and Bt toxins expressed in the plants.

Already pink bollworm has broken the protection provided by the current Bt cotton. With global warming, insect attacks on crops are going to increase," **Deepak Pental** from **the Centre for Genetic Manipulation of Crop Plants** and one of the authors of the paper said.

According to researchers at the Varisty's Centre for Genetic Manipulation of Crop Plants and **Department of Genetics** one Bt toxin protein is targeted at the cytoplasm while the other is targeted at the plastids that are the site of photosynthesis and many other biochemical pathways in the plant.

The paper titled "High Expression of Cry1Ac Protein in Cotton (*Gossypium hirsutum*) by Combining Independent Transgenic Events that Target the Protein to Cytoplasm and Plastids" was recently published in academic journal PLOS ONE.

Pental said there is a general consensus among population genetics experts that development of *resistance to Bt toxin can be slowed down by growing 'high dosage' toxin plants and by keeping a "refuge"* - that is, growing some non-Bt plants surrounding Bt crops.