GE TOBACCO DEVELOPED FOR MORE EFFICIENT PHOTOSYNTHESI

The second of three major steps needed in turbocharging photosynthesis in crops such as wheat and rice was completed by researchers from Cornell University in the United States, and Rothamsted Research in the United Kingdom. The team, led by Myat Lin in Cornell and Alessandro Occhialini in Rothamsted, successfully transferred genes from cyanobacteria into tobacco plants. The genes allow the plant to produce a more efficient enzyme for converting carbon dioxide from the atmosphere into sugars and other carbohydrates, something that could boost yields by around 36 to 60 percent.

The Cornell and Rothamsted researchers replaced the gene for a carbon-fixing enzyme called Ribulose-1,5-bisphosphate carboxylase/oxygenase (RuBisCo) in a tobacco plant with two genes for a cyanobacterial version of RuBisCo, which works faster than the plant's original enzyme. Crops with cyanobacteria's faster carbon fixation would yield more, according to a computer modeling study by Justin McGrath and Stephen Long at the University of Illinois. Maureen Hanson, plant molecular biology professor at Cornell, said, "This is the first time that a plant has been created through genetic engineering to fix all of its carbon by a cyanobacterial enzyme. It is an important first step in creating plants with more efficient photosynthesis."

For more details, read the Cornell Chronicle: http://www.news.cornell.edu/stories/2014/09/plant-engineered-more-efficient-photosynthesis.