Gene discovery could make GMO poplar trees a renewable source of biofuels

For decades, biologists have believed a key enzyme in plants had one function—produce amino acids, which are vital to plant survival and also essential to human diets.

But for Wellington Muchero, Meng Xie and their colleagues, this enzyme does more than advertised. They had run a series of experiments on poplar plants that consistently revealed mutations in a structure of the life-sustaining enzyme that was not previously known to exist.

Their discovery could alter the course of gene functional studies in plants and, if applied, it could squeeze more potential out of poplar as a renewable resource for making biofuels and bioproducts.

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They found that poplar plants with certain mutations created unexpectedly low levels of lignin across different environments and tree ages.

Lignin fills spaces in plant cell walls to provide sturdiness. Muchero and his team study the genetics of poplar as part of the lab's the Center for Bioenergy Innovation, or CBI, to develop methods to grow modified varieties with low lignin content. Less lignin makes plants easier to breakdown during the industrial poplar-to-biofuels process.

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The team published their findings in The Plant Cell journal.

Read full, original article: Critical plant gene takes unexpected detour that could boost biofuel yields