

Crambe could be an even better oil crop thanks to gene technology

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It is possible to apply genetic modification to the crop crambe so it meets market demands and takes into account what modern society wants. These are the results of research for which Weicong Qi will receive his PhD on 27 August at Wageningen University, part of Wageningen UR.

Qi has developed a technique to genetically modify crambe without [marker genes](#) appearing in the crop. Using this technique he was able to steer the manufacture of metabolic substances in a direction that would make the crop more attractive to the processing industry.

Crambe (*Crambe abyssinica*), a bio-based economy crop, is a source of [renewable raw materials](#) that will allow industry to become less dependent on petroleum, thus leading to a more [sustainable economy](#).

Biobased Economy

At the moment, however, the quantities of oil this crop produces are too small to meet the needs of industry, which has a particular interest in erucic acid. That is why crambe has been bred for a number of decades. It seems that when Crambe is crossbred, it can produce, at most, 65% erucic acid: too little to make the crop economically viable. That is why the Chinese PhD student Weicong Qi investigated the possibility of enhancing erucic acid production in crambe by applying [genetic modification](#).

Genetically modifying crambe

Qi has developed a workable system for genetically modifying crambe, and one that does not lead to marker genes in the crop. He used the technique to transfer a gene to crambe which meant the plant could build oil molecules with not two, but three erucic acid molecules on the three available positions on each oil molecule (glycerol). In this way Qi managed to increase the erucic acid levels to more than 75%. According to his co-supervisor, Frans Krens, this is an important step forward. "It's not the whole story, but Qi has shown that this approach can work. A start has been made"

Provided by Wageningen University

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