ID: 69

Genome-Edited Crops: A Hope To Mitigate Food Security Challenges In 23rd Century

Ghulam Mustafa*[1], Faiz Ahmad Joyia[1], Aqsa Parvez[2], Muhammad Sarwar Khan[1]

[1]Centre of Agricultural Biochemistry & Biotechnology (CABB), University of Agriculture, Faisalabad, Pakistan
[2]The Women University, Multan Pakistan

Genome editing is an emerging innovation of the current millennium that has potential to feed rapidly increasing population all over the world. This cutting-edge technology has successfully been employed for improved per hectare yield, better quality of the produce and stacking gene mutations for improved agronomic traits. Though ambiguities are there in the regulation and acceptance of genome-edited plants because most of the edited plants are produced through insertion of DNA sequences and their removal in the subsequent steps. This demands discrimination of edited plants from the transgenic ones and clarity in policy for the commercialization of genome-edited crops. European commission has recently released a proposal which suggests that plants developed through targeted mutagenesis or cisgenesis must be categorized separately from GMOs (Genetically Modified Organisms) and they should be treated as "conventional-like" category 1 plants. So, CRISPR-edited crops will not be taken as conventional GMOs and need not to get approval from the regulatory authorities. This highlights significance of this technology to develop improved crop varieties having potential to feed 298 million starved people of the world. Numerous crops plant have been developed for improved traits i.e. disease resistance (banana, cassava, maize, potato, rice, wheat), improved quality (cassava), nitrogen remobilization and insect resistance. Hence, genome editing is a great hope to mitigate food security challenges.

Keywords: *Genome-editing, GMOs, CRISPR-CAS, Food security, Targeted mutagenesis*