

# Title: Status of CRISPR/Cas-mediated Gene Editing of Cassava

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The global human population is projected to reach 10 billion by 2057, with most of this growth occuring in developing countries. Achieving zero hunger and nutrition food security in these countries will require the use of innovative crop breeding techniques to increase production potential of and adapt commonly grown crops to feed the growing population in the climate change era. CRISPR/Cas-mediated gene editing is a novel breeding approach that has been used to facilitate precise generation of novel genetic combinations in a shorter period in other crops, in a manner not attainable through conventional breeding. Gene editing provides unlimited potential for achieving hunger free and food scure world by generation of novel and superior crops and animals within shorter period. In 2017, proof of concept for efficient CRISPR/Cas-based gene editing was demonstrated in cassava (*Manihot esculenta* ), Africa's main staple food and income crop. Gene editing application has now been exteneted to generate cassava that is resistant to devastating cassava brown streak viruses, with improved starch quality, with reduced cyanide content and cassava that exhibits early and synchronised flowering for efficient breeding. These and other on-going gene editing applications can generate safe, nutritious, high yielding and climate ressilient cassava varieties and make the crop the leading supplier of food and feed for the growing population in Africa. The current status of gene editing for research and development in cassava and the regulation of gene edited crops in Africa will be discussed.

**Biography**

John Odipio completed his PhD in 2020 at Ghent University. He pioneered efficient use of CRISPR/Cas9 for editing Phytoene desaturase and applied the knowledge gained to engineer targeted mutation in anti-flowering *TFL1* genes in cassava. He has 14 years expereince in cassava researh particularly in laoratory based production of transgenic, gene edited cassava and confined field testing of cassava. He is a scientist working with NARO at NaCRRI-Namulonge campus. He has published nine peer reviewed papers and contributed to development of field and laboratory based protocols now being used by several African Agricultural Institutes.

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