Unlocking the potential of CRISPR technology for improving livelihoods in Africa

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Abstract

Africa is burdened with food shortages and plant, animal and human diseases. Some of these can be ameliorated by adopting genome editing technologies such as CRISPR. This technology is considered better than its predecessors, Zinc-finger nucleases (ZFNs) and transcription activator-like effector nucleases (TALENs), because it is cheaper, easy to use, has high gene modification efficiency and is less time consuming. CRISPR technology has wide applications in the African context ranging from crop and animal improvement to disease diagnosis and treatment as well as improving food shelf life, organoleptic properties and food safety. It has the potential to bring back species of organisms that are extinct. However, some African countries have not taken advantage of the potential of CRISPR to solve many of their problems. This paper explores possible applications of CRISPR towards improvement of African livelihoods.

Keywords: Genetically modified organism, genome editing, sgRNA