Breeding strategies for enhancing nutrient content and quality in Cucurbitaceae: a review

ABSTRACT

Micronutrient malnutrition is a major problem in developing countries affecting women, children and infants. Biofortification, improved soil health and waste management efficiencies have been used to overcome nutrient deficiencies. Application of classical breeding and selection resulted in rapid development of staple crops through breeding. The Cucurbitaceae mainly pumpkins and squashes (*Cucurbita moschata* Duch., *Cucurbita pepo* L., *Cucurbita maxima* Duch. ex Lam), cucumber (*Cucumis sativus* L.), watermelon (*Citrullus lanatus* L.), and melon (*Cucumis melo* L.) possess beneficial vitamins and minerals that can be used as nutrients for human consumption. To improve nutritional content in Cucurbitaceae, understanding the information in the genome is important for breeders to increase the level of nutrition and quality of characteristics using biotechnology approaches. Nonconventional breeding approaches can assist conventional breeding to save time, costs, and efficacy in selection. This review describes breeding strategies for necessary solutions toward development of elite varieties of Cucurbitaceae via various approaches that contain high nutrition content and improve traits and quality to fight micronutrient malnutrition.