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Crop physiology and genetics: The missing links in salinity stress tolerance in cucumber

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Salinity is one of the major abiotic stresses limiting growth, productivity and distribution of major food crops globally. The adverse effects of salinity stress in salt sensitive crops such as cucumber is expected to increase due to prevailing negative climatic changes and incorrect fertilizer and irrigation management. Cucumber is an important fruit vegetable that is consumed fresh, pickled and also forms an important raw material in pharmaceutical industries. Research on salt tolerance in cucumber is active at physiological, genetic and molecular levels. However, the interaction of genetics and physiology in salt tolerance in cucumber is not well documented. The complexity of salt tolerance in cucumber necessitates concerted efforts of crop physiologists, geneticists, breeders and agronomists in the quest to develop cucumber genotypes with acceptable yields, quality at high soil or water salinity. The purpose of this review is to provide current advances of salt stress research and highlight major hurdles to development of salt tolerant cucumber genotypes. The paper discusses the interaction between physiological and genetic responses to salinity stress in cucumber. A review of potential genetic and physiological markers with a view of selecting and enhancing salt tolerant cucumber germplasm are presented.

Biography

George Mbira Kere holds a PhD in Vegetable Science degree of Nanjing Agricultural, China. His research area of interest is on the genetics of salt tolerance in cucumber and other cucurbits. He has presented papers in various international conferences. He has published more than 10 articles in refereed journals. He has a wide experience in the field of agriculture both in public and private sector. Currently, he is the Head of Department of Agricultural Biosystems and Economics at University of Kabianga. He is a Member of Institutional Research Ethics Committee of University of Kabianga.

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