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Development of *Agrobacterium*-mediated transfromation protocol for African varieties of pigeon pea

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Abstract

Pigeon pea is an important grain legume in Sub-Saharan Africa. In Kenya, it is ranked as the third most important legume after cowpea and the common bean. Farmers especially in Eastern Kenya, Makueni, highly rely on the crop. It provides a rich source of food, firewood and income for poor smallholder farmers. However, there are several constraints associated with its production. They include use of poor production practices such as low plant densities, low soil fertility and inappropriate or insufficient use of fungicides. Insect pests are the most important biotic constraint. Insect pests, mainly pod borers (*Helicoverpa armigera* and *Maruca vitrata*), attack pigeon pea during flower and pod development stages causing yield losses of up to 85%. Farmers rely on chemicals for control of these insect pests. These chemicals are expensive and often not affordable for most farmers in Africa. They also pose environmental concerns associated with human health problems. Control of some of these constraints like the pod borers that cause major yield losses, through conventional plant breeding has also not been possible due to lack of genetic sources of resistance and incompatibility among the wild relatives. As a result, use of other alternative approaches such as genetic engineering to develop varieties with resistance to major insect pests including pod borers would be desirable for efficient, cost effective and sustainable agriculture. Although there is potential to improve pigeon pea through *Agrobacterium*-mediated transformation, the optimal conditions for the process have not yet been optimized for Kenyan cultivars.

Biography

Pauline Asami has completed her M.Sc. degree at the age of 25 from Jomo Kenyatta University of Agriculture and Technology. She is a Research Assistant (Plant tissue culture and Transformation) at Biosciences Eastern and Central Africa (BecA). She is in the process of publishing two papers from this work.