



An Efficient Approach for Improved Production of *C. papaya* using Marker Assisted Sex Determination

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ABSTRACT: Caricapapaya, a dioecious plant does not exhibit sexual dimorphism before maturity. Recognition of gender at seedling stage is very important because of its high economic, nutritive and medicinal value. Early diagnosis of planting material of this crop helps in reducing the efforts in breeding and cultivation till flowering. Realising above problems, several approaches have been used to resolve the problems associated with sex identification. One such approach is the development of marker system to identify sex at a very early stage of the plant life cycle. Various types of markers viz. morphological, biochemical and molecular markers have been developed to differentiate male from female plants in papaya. In the present investigation, experiments were conducted to screen the papaya seedlings using SCAR and ISSR molecular markers. The planting material comprised of five Indian papaya varieties i.e. Pusa nanha , Pant papaya, Pant2, PS1 and Pusa dwarf. Genomic DNA was extracted and DNA markers (SCAR,ISSR) were used to determine sex-types in papaya plants using PCR based technology. Three sex-linked sequence characterized amplified region (SCAR) markers 1, 2, 3 produced 978 bp and 800 bp male specific bands respectively. Hence SCAR marker 1, 2 and 3 can be used to determine sex of papaya in above said varieties at seedling stage which will further helpful in improvement of fruit production in this crop. © 2016 iGlobal Research and Publishing Foundation. All rights reserved.

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