

SUMMARY

PLANT SEX IDENTIFICATION IN VITROPLANTS OF MSXJ PAPAYA HYBRID (*Carica papaya* L.) USING MOLECULAR MARKERS

In 2014, Mexico was ranked as the world's leading producer of papaya fruit. This crop is affected by the fall of fruits at temperatures above 35 °C during flowering. The MSXJ Hybrid represents an alternative for papaya fruit producers; since one of its most outstanding characteristics is its tolerance to heat. Papaya (*Carica papaya* L.) is a polygamous species, the plants can be staminate or male, pistillate or feminine and bisexual or hermaphrodite the latter of greater economic value, since they produce fruits with better shape, more meaty and with less internal cavity, ideal for the market of export. The fruits of hermaphrodite plants of the MSXJ hybrid of papaya are of good quality, have an elongated shape, no deformations, consistent pulp, exquisite taste and aroma. However, plant sex is determined until flowering, which is a limitation for the papaya grower, since it involves additional costs and difficulties in crop planning. Identifying the sex of the plant before flowering avoids additional costs and improves soil management. The objective of the present research was to identify the sex on vitroplants of the MSXJ hybrid of papaya using molecular markers SCAR before flowering. Apical meristems were used to obtain seedlings *in vitro* via direct organogenesis, using Murashige & Skoog culture media. DNA was obtained with the CTAB method. Plant sex was identified using the SCAR T1, T12 and W11 primers. Primer T1 was used as a positive control. Primers T12 and W11 amplify for hermaphrodite plants, null for female plants and a double band of 800 bp and 1300 bp for male plants. In this study, molecular markers T12 and W11 were specific for hermaphrodite plants and for female plants. T1 was useful as a positive control amplifying for female and hermaphrodite plants. Therefore, this technique allows the identification of sex in the MSXJ hybrid of papaya, before planting and thereby reduce costs and allow better crop planning.

Key words: Papaya, plant-sex, DNA, vitroplants.