



Research Paper

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Evaluation of gynodioecious papaya varieties - Arka Surya and Arka Prabhath

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ABSTRACT : Evaluation is one of the prerequisites for choosing the parents in a breeding programme as it helps in the selection of parents and forms a basis for development of recombinants with the desirable traits. With this objective selfed progenies from gynodioecious papaya varieties Arka Surya and Arka Prabhath were evaluated for morphological and fruit traits. Although, they are stable gynodioecious, still some variation for plant and fruit characters are evident in the progenies due to different genetic constitution of female and hermaphrodite plants in the population. However quality of the fruits did not differ much. Hence, a study was envisaged to see the sib mated progeny performance of both the hybrids.

KEY WORDS : Gynodioecious, Hermaphrodites, Sibmating

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Papaya, *Carica papaya* L. is one of the major fruit crops cultivated in tropical and sub-tropical zones. According to 2009-2010 estimates, papaya is grown in 95,700 ha with an annual production of 39,13,500 metric tons and productivity of 40.9 metric tons per hectare (Anonymous, 2010). Improvement of any crop depends on the chosen parents for hybridization programme. Hence, evaluation of varieties is very important. An experiment was carried out to evaluate intervarietal progenies of Arka Surya and Arka Prabhath (Arka Surya x Tainung-1) Local Dwarf for various plant and fruit characteristics, to locate useful progenies. Arka Surya is a cross between Sunrise Solo x Pink Flesh Sweet released. It is gynodioecious with medium sized fruits of 600 to 800 g and smooth skin. Arka Prabhath is an advanced generation hybrid derived from the cross of (Arka Surya x Tainung-1) Local Dwarf released from Indian Institute of Horticultural Research. It is gynodioecious in nature, with large sized fruits of 900 to 1200 g and smooth skin. Both the fruits have attractive deep pink coloured, soft, crisp pulp free from typical papaya odour with high TSS (13-14⁰B). Fruit cavity is small, on ripening fruits attain yellow skin colour.

RESEARCH METHODS

Investigation on evaluation of gynodioecious papaya

hybrids- Arka Surya and Arka Prabhath was carried out during 2010-2011 at the Division of Fruit Crops, Indian Institute of Horticultural Research (IIHR), Bangalore. The experimental site is located at an altitude of 890 m above mean sea level with 13⁰N and 17⁰37' E. Soil was red sandy loam with a pH 5.2 – 6.4. The intervarietal progenies of the varieties Arka Surya and Arka Prabhath were evaluated for both morphological (plant height, stem girth, number of nodes, number of leaves and plant spread (East-West, North-South) at the time of first flowering) and fruit characteristics (fruit weight, fruit length, fruit width, pulp thickness, total soluble solids, fruit volume, fruit cavity index, number of seeds and keeping quality). Seedlings of both varieties were field planted and two months after planting were evaluated for morphological characters. General package of practices were followed for the cultivation. The fifteen progenies (P₁-P₁₅) formed the material and designated as 15 treatments were used for evaluation for each variety (Arka Surya and Arka Prabhath). Each treatment was carried out with five replications following Randomized Complete Block Design (RCBD).

RESEARCH FINDINGS AND DISCUSSION

Evaluation of intervarietal progenies of many combinations has been carried out by many workers in the