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Stigma receptivity in Cashew nut (*Anacardium occidentale* L.)

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Abstract

The cashew is widely and commercially cultivated throughout the nation for its nut. Cashew is a polygamo - monoecious plant with both male and bisexual flowers developing in same inflorescence. Experimental study was conducted at Kesiary Cashew Plantation Sector, Medinipur as per the guidelines Regional Research Station, Jhargram and National Research Centre of Cashew, Karnataka (2014 - 2018). Changes in stigma receptivity were studied by over 100 panicles chosen at random taken from the commercially cultivated germplasms (WBDC – 4, Kottakerala - 2/97, Dicherla – 2/9, Vetore – 56 and Ullal - 2). The study was continued as for one day before, on the day of flower opening, one day & two days after flowering. It indicates that one day prior to opening & two days after of flowering, stigma receptivity was maximum in the plants of Vetore – 56. But on the day & one day after of flowering it was highest in Dicherla – 2/9. The optimum period of receptivity was at 12 noon on the day of anthesis.

Keywords: Anthesis, apomixes, auto-pollination, cymes, inflorescence, panicle.

Introduction

Cashew is widely & commercially cultivated throughout the nation for its nut. It is a polygamo-monoecious plant with both male & bisexual flowers developing in same inflorescence. It is a panicle type of inflorescence. Here the secondary branches are racemes and the ultimate branches are cymes (Ascenso, 1986; Free and Williams, 1976). The cashew plant normally comes to flowering in 3 – 5 years. Flowering starts at the month of September and continues till the month of

March, but the peak period of flowering is December to February (Annual Report of NRCC, 1985 - 2010; Mathew and Nagabhusanam, 1988). The flowers are totally dependent on insects for pollination. Here auto-pollination, apomixes, anemophily have no or little response. Study of plant-pollinator relationship via a flower's female fitness and eligibility components has paying great attention due to their relative case of measurement. Comparison among pollinator has then often

entailed quantification of the number of pollen grains they have deposited on stigmas. Cashew is a highly cross pollinated crop and the degree of self pollination which occurs is little or not known (Bhat et al., 1998; Mathew and Nagabhushanam, 1988). Moreover, little research attention had paid to Cashew plant in this respect. This investigation was undertaken to provide information regarding the nature and magnitude of receptivity of stigma of cashew flowers.

Material and Methods

Experimental studies were carried out at Kesiary Cashew Plantation Sector, Medinipur as per the guidelines Regional Research Station, Jhargram and National Research Centre of Cashew, Karnataka (2014 - 2018). Cashew trees of the five germplasms named WBDC – 4, Kottakerala - 2/97, Dicherla – 2/9, Vetore – 56 and Ullal– 2 was considered for this experimental study, having highest commercial value (Bhat et al., 1998; Chacko, 1993). It is done with fine nylon & muslin bags, each panicle contains several bisexual flower buds about to open. The undertaken germplasms were WBDC – 4, Kottakerala - 2/97, Dicherla – 2/9, Vetore – 56 and Ullal– 2. The study was continued as for four consecutive days, three times per flowering season during five flowering season [one day before, on the day of flower opening, one day and two days after flowering (Allard, 1960; Bailey, 1958; Shivanandam et al., 1986; Faluyi, 1987).

Observations

From the ongoing experiments it revealed that one day prior to opening & two days after of flowering, stigma receptivity was highest in the plants of Vetore – 56. But on the day and one day after of flowering it was highest in

Dicherla – 2/9. The results presented in following table 1.

Discussions

The study revealed that the stigma of cashew flower was receptive one day before anthesis and continues to be so far about 48 hours after anthesis. The optimum period of receptivity was at 12 noon on the day of anthesis. This was inconformity with the views of cashew breeders.

Conflict of interest

Author declares that there is no conflict of interest.

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Table 1. Stigma receptivity of different Cashew germplasms.

Cashew germplasms	Days of flowering			
	One day before flowering	On the day of flower opening	1 day after flowering	2 days after flowering
Kottakerala - 2/97	20	79	48	27
Vetore – 56	22	82	52	34
WBDC – 4	19	75	50	31
Dicherla – 2/9	21	83	54	29
Ullal - 2	20	73	52	29
MEAN	20.4	78.4	51.2	30
SE(M)	0.5099	1.939	1.198	1.183

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