

MECHANISM OF MONOCARPIC SENE-SCENCE OF *TRICHOSANTHES DIOICA* ROXB (CUCURBITACEAE)

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Most of the Cucurbitaceous plants are hermaphrodite. In this respect *Trichosanthes dioica* Roxb (Cucurbitaceae), common name parval seems to be an ideal for studying the role of fruits as well as flowers as both fruits and flowers are present in a single or in different plant system and may contribute for the manifestation of senescence syndrome. This is because in *Trichosanthes* 3 types of plants (male, female and hermaphrodite plants) developed in the same field naturally even under non-competitive condition. The present paper aims at separating the role of male flowers and female flowers in relation to their combined affect (hermaphrodite plants) so as to prove the effect of senescence signal during correlative senescence of such plants.

Seeds of *Trichosanthes dioica* were sown during December in the field in lines on the ridges (90 cm apart). Some of the plants produced fruits only, other produced only male flowers, a few were hermaphrodite, 20 plants made defruited through physical manipulation (tailoring).

For the determination of senescence, chlorophyll level of leaves were estimated during the plant age of 270 days (the female plants completely senesced at 290 days before winter). The chlorophyll level of defruited and male plants (Table 1) higher than those of female and hermaphrodite plants indicating the order of senescence as: Female > hermaphrodite > male > defruited. The maximum deferment of leaf senescence in defruited as well as male plants may possibly be due to the absence of fruits which might supply the senescence signal and suggests the triggering effect of

Table 1
The levels of chlorophyll and dry weight of whole plants at the plant age of 270 days (prior to harvest)

Treatment	Chlorophyll mg g ⁻¹ . FW	Dry weight g plant ⁻¹
Female	0.69	30.2
Hermaphrodite	0.85	32.1
Male	1.02	33.15
Defruited	1.08	33.0
CD at 5%	0.15	0.66

reproductive organ (fruit) for the induction of leaf senescence. Nooden (1980, 1984) Ghose and Biswas (1995) also concluded the senescence signal developed from the fruits, migrates downwards for the induction of foliar senescence. Highest increase in aerial plant dry weight was found in the male plant which proved the predominant role of fruit for the longevity of plants.

The results show that prior to harvest, the level of chlorophyll in the leaves of male plants as well as defruited plants of *Trichosanthes dioica* was higher than female plants or hermaphrodite plants indicating the senescence pattern as: female > hermaphrodite > male > defruited. Certainly, the presence of fruit hasten senescence.

Key words: Chlorophyll, Defruited, Senescence.

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