

## FLORAL PHENOLOGY OF *TRICHOSANTHES CUCUMERINA* L. – A MEDICINALLY IMPORTANT CUCURBIT

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Received-19.06.2015, Revised-24.06.2015

**Abstracts:** *Trichosanthes cucumerina* L. is an annual cucurbit popularly known as “Jangali Chachinda” in hindi. It is widely distributed in tropical regions of Bangladesh, India, Nepal, Pakistan, Srilanka, Myanmar, Vietnam, Indonesia, Malaysia and Philippine (Sandhya *et al.*, 2012). The fruits of the species are relished as a vegetable and are known to have good nutritional value. The plant is also rich in flavonoids, carotenoids and phenolic compounds. It holds promising place in the Ayurvedic and Siddha system of medicine due to its various medicinal values like antidiabetic, hepatoprotective and cytotoxic effects (Sandhya *et al.*, 2010).

**Keywords:** *Trichosanthes cucumerina*, Monoecious, Nocturnal, Reproductive efficiency

### INTRODUCTION

In Jammu district of J&K state (India) vines of the species can be seen growing at several places (Samba, Birpur, Purmandal, Kathua, Hiranagar). In our attempt to enlist wild cucurbits of Jammu province some of these plants were located and tagged at Birpur and Purmandal area of Samba district of Jammu province (Alt - 345masl, Loc – N33°08.648, E075°45.939). To promote this species as a cash crop under cultivation due to its high nutritional and medicinal value, phenological data was gathered on these plants. Plants were seen to propagate by seeds only. Seeds germinate in the month of June and the plant pass a brief vegetative phase of one and a half month. Commencement of flowering occurs in mid July and extends till the ending September.

The temperature during the flowering season fluctuates between 25.9 - 36.6 °C in the month of July to 22.4 - 31.9 °C in September. The species is monoecious bearing separate male and female flowers. Lower nodes of the vine bear staminate flowers, while on the middle and upper nodes both staminate and pistillate flowers coexist. Male flowers are first to open on a vine at lower staminate nodes followed by the opening of female flowers after a time gap of 10 – 12 days at middle nodes, on the nodes of their coexistence female flowers are first to open followed by the opening of male flower after a gap of 9-10 days. Successful fruit set thus requires pollen transfer between different nodes.

Male flowers are borne on pedunculate raceme with each raceme bearing about 27 – 31 male flowers. Female flowers are solitary with short peduncle.

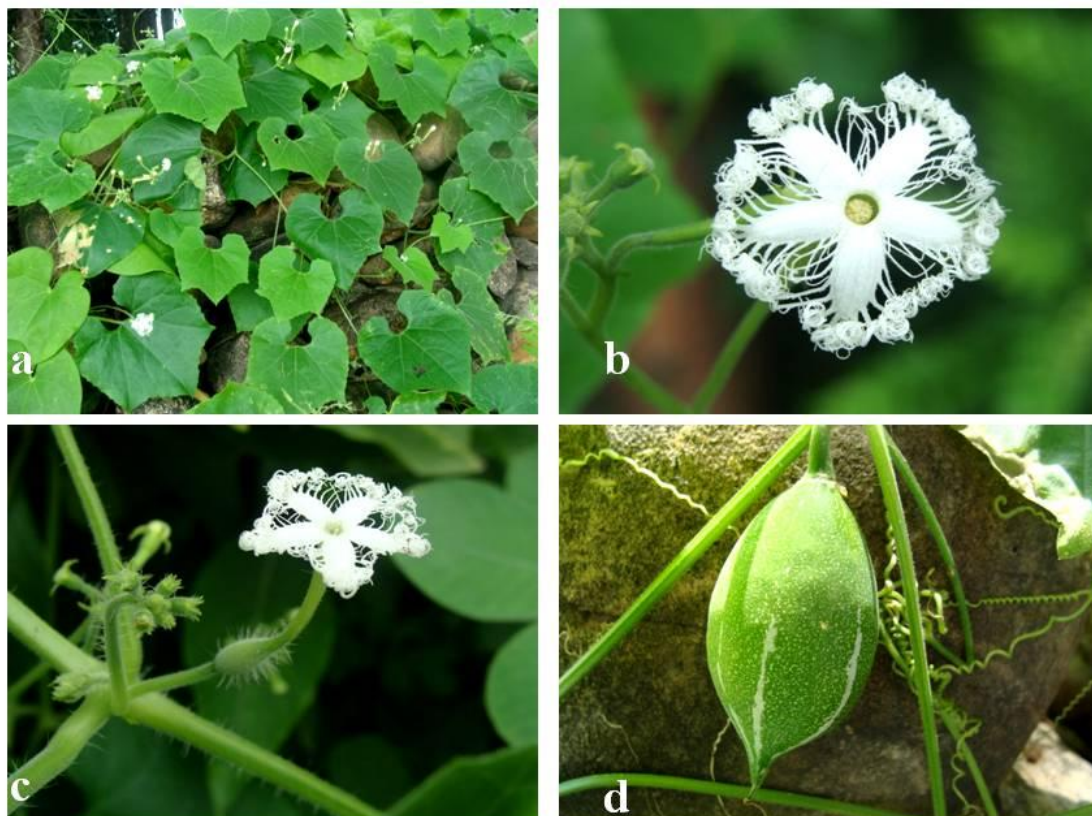
Both male and female are white coloured with tubular calyx and corolla lobes fringed with hair like outgrowths (Fig.1). Both male and female flowers of the species are fragrant and nectariferous.

*T. cucumerina* is nocturnal with flower opening initiating between 2030 to 2100 hrs. Male flowers are first to open followed by the opening of female flowers after an interval of 10 – 15 mins, at the time of their existence, at different nodes on a vine. Another dehiscence in male flower begins as soon as the flower open but it gets completed only by 6000 to 7000hrs of the next day, at a time when female flower show maximum receptivity. Stigma receptivity in female flower also initiates with flower opening, though the peak is achieved only during morning hrs. Flowers of both the sexes remain open for the whole day and finally close by 1800hrs. Fruit set is initiated simultaneously with the closure of female flowers. Opening thus expands for about 20 – 22 hrs. During this period of flower opening, flowers are visited by both nocturnal (moths) and diurnal (bees, butterflies, ants) insect visitors. Species thus enjoys dual benefit of nocturnal and diurnal pollination. The same results in high reproductive efficiency which is depicted in both high fruit set (75%) and seed set (80%).

### ACKNOWLEDGEMENT

The authors are grateful to the Head of Botany, University of Jammu and BSR (Basic Scientific Research) Fellowship for providing the financial support and all other necessary facilities to carry out the research work.

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**Fig-1. *Trichosanthes cucumerina* a) A climbing vine b) A Male flower (X 1.5 ) c) A Female flower (X 1.2 ) d) A fruit (X 0.5 )**

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