



Floral phenology in *Zanthoxylum armatum*: a dioecious taxon

Renu Sharma and Namrata Sharma*

Department of Botany, University of Jammu, Jammu (J&K) -180006, India

e-mail : phyllanthus@rediffmail.com

Received : 01.02.2016; Accepted and Published on line: 01.07.2016

Zanthoxylum armatum DC. (Rutaceae), commonly called as Timur is an important ethnomedicinal shrub to a small tree species that forms natural strands in some regions of Jammu, J & K, India. Populations of this species were located at Jaganoo and Dhandaal areas of Udhampur and Bhaddu, Sukrala and Veerpur areas of Kathua, over an altitudinal range of 550-1100 masl. The plants were analysed for details of their reproductive biology. Species turned out to be dioecious; thus each population was composed of separate male and female individuals. Males outnumber females in every population with the average ratio being (1.7:1). Flowering initiates in early March, when the average temperature of the area of occurrence fluctuates between 18-21°C.

The flowers are borne in a panicle. The male inflorescences are initially green in colour but turn yellow on maturity, the female inflorescences on the other hand remain green throughout except styles, which turn yellow to brown after pollination and wither. Both the flowers viz. male and female are actinomorphic, with 6-8 free sepals. Petals are absent. Each male flower bears (4-8) stamens, with the most common number as 6 (Fig. 1A). The anthers are yellow, ditheous and basifixed. Each female flower bears (2-3) carpels on a common gynophore, with the common number as 2 (Figs. 1B & C). Ovary is unilocular and superior with two ovules (Fig. 1D).

The male plants start differentiating flowers 14-16 days earlier than the female plant in every population studied. The young male buds take 8-10 days to open and mature. The whole series of events from differentiation of flower to complete anther dehiscence takes 21-23 days. Anthesis is asynchronous in male inflorescence; in most cases it follows a basipetal succession. In contrast to male inflorescence, anthesis is almost synchronous in female inflorescence. In the blooming period, both the plants (male and female) attract several insect species at different timings. In accordance with their blooming pattern the male plants attract the pollinators first and the female plants are visited quite late, nearly after a gap of 12-14 days from the male plant.

The insects visit the male plants for almost a month, but remain on the female plant for lesser number of days (14-15), the most important pollinator in *Apis dorsata*, which carries ample pollen load on its body with maximum number on the abdomen.

Fruiting initiates during mid April and the fruit remains green up to mid July, after which it turns its colour to red and then brown and start dehiscing from first week of August. Dehiscence is complete by the end of September. Fruit is a capsule; a dry dehiscent, one seeded fruit developed from a bicarpellary- tricarpellary, apocarpous, superior unilocular ovary (Fig. 1E).

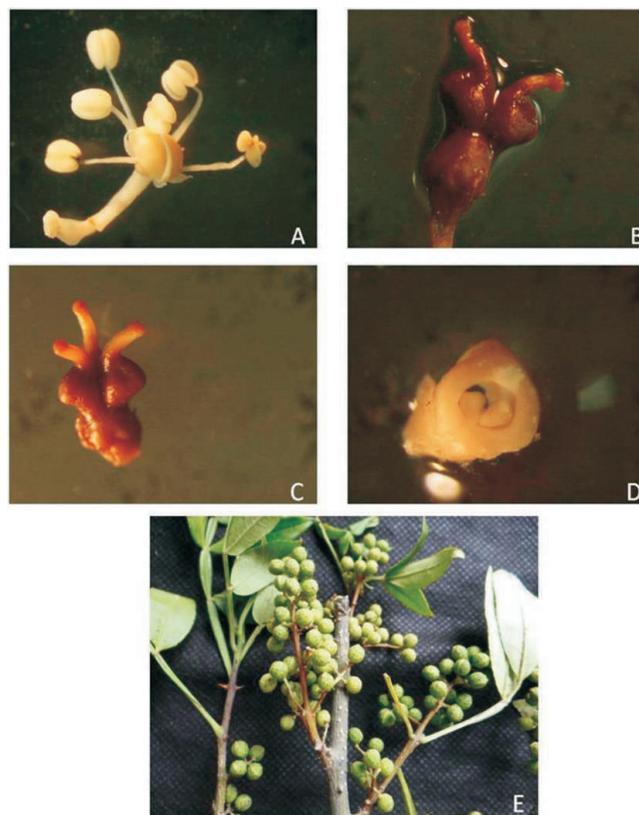


Fig. 1– (A) A male flower, (B & C) A female flower with 2 & 3 carpels respectively, (D) T.S. of ovary with two ovules, (E) A fruiting twig.