

Multipronged Strategy for the Crop Improvement in *Grewia Asiatica* L.

Tareq A. Wani¹, Surrinder K. Lattoo²

^a Plant tissue culture lab, Department of Botany, University of Kashmir,
Hazratbal, Srinagar, Jammu and Kashmir(India)

^b Plant Biotechnology Division, CSIR-Indian Institute of Integrative Medicine,
Canal Road, Jammu Tawi, (India)

ABSTRACT

Grewia asiatica L. (Malvaceae), commonly known as 'Phalsa' is a multipurpose gregarious shrub reputed for its medicinal properties due to its mention in Ayurveda and Indian Systems of Medicine. The fruit is astringent and stomachic alleviates inflammation and is administered for fever reduction, in respiratory, cardiac and blood disorders. In spite of the diverse uses, two drawbacks prevent full exploitation of this species. These are short shelf life of its fruits and larger seed size. Short shelf life makes the fruits suitable only for local marketing and the larger seeds reduce the fruit volume. To circumvent these drawbacks, induction of parthenocarpy or stenospermocarpy is a viable option. Parthenocarpic fruits are seedless and tend to have longer shelf life. During the present investigation, a multipronged strategy is being envisaged for the induction of parthenocarpy. It would encompass the study of breeding system and the molecular cloning of conserved pathway genes implicated in parthenocarpy. While the former requires an understanding of flowering phenology and reproductive behaviour, the latter is based on the knowledge of parthenocarpic pathway, its regulation and genes involved. Two important genes, of parthenocarpic pathway like Chalcone synthase (CHS) and auxin responsive factor (ARF) have been identified in this investigation. Establishment of efficient *in-vitro* regeneration system for *Agrobacterium* mediated transformation would also supplement and complement the induction of seed abortion.

Key words: *Grewia asiatica*; Breeding system; Crop improvement, Cloning, *Agrobacterium*,