

GENETIC SYSTEMS IN *ARTEMISIA* L. I: *ARTEMISIA TOURNEFORTIANA*, A SPECIES WITH HIGH SEXUAL REPRODUCTIVE EFFICIENCY

Uma Bharti^{1*}, Gazala Jaffri Mir¹, Rinchen Gurmet¹, Eshan Sharma¹ and Namrata Sharma¹

¹Department of Botany, University of Jammu, Jammu 180006, India

Email: umabotany786@gmail.com

Received-14.07.2017, Revised-26.07.2017

Abstract: Present communication encompasses detailed studies on genetic system of *Artemisia tournefortiana* Reichb., (F. Asteraceae) sprawling at Rumtse, Khardong and Kharu areas of Ladakh region of Jammu & Kashmir, India. Species has high sexual reproductive efficiency and exhibits a stable genetic system with diploid chromosome constitution and high pollen stainability resulting in good seed set averaging 60.61 ± 1.55 on open pollination. Plants of the species studied by us are based on $x=9$ and invariably exhibit $2n=18$ as their chromosome number. Somatic analysis reveals presence of 16M and 2 SM chromosomes.

Keywords: *Artemisia*, Chromosome, Genetic system, Reproductive efficiency, Somatic analysis

REFERENCES

- Ara, S. and Naqshi, A.R.** (1992). Ethnobotanical studies in the Gurais Valley. J. Econ. Tax. Bot. Addl. Ser, 10.
- Bremer, K. and Humphries, C.J.** (1993). Generic monograph of the Asteraceae Anthemideae. Bulletin of the Natural History Museum of London (Botany), 23(2):71-177.
- Chehregani, A. and Mehanfar, N.** (2008). New chromosome counts in the tribe Anthemideae (Asteraceae) from Iran. Cytologia, 73:189-196.
- Chehregani, A. and Hajisadeghian, S.** (2009). New chromosome counts in some species of Asteraceae from Iran. Nordic Journal of Botany, 27:247-250.
- Ene, A.C., Atawodi, S.E., Ameh, D.A., Kwanashie, H.O. and Agomo, P.O.** (2009). *In vivo* antiplasmodial effect of chloroform extracts of *Artemisia maciverae* Linn. and *Artemisia maritima* Linn. African Journal of Biotechnology, 8(23):6612-6616.
- Jabeen, N., Bharti, U. and Sharma, N.** (2012). Inter-population chromosome variation in *Artemisia nilagirica* L. Nucleus, 55(2):67-71.
- Mir, G.J., Gurmet, R. and Sharma, N.** (2014). Interpopulation variability in *Artemisia glauca* Pall. ex Willd., Studies on three distinct cytotypes. Nucleus, 58(2): 95-100.
- Janbaz, K.H. and Gilani, A.H.** (1995). Evaluation of the protective potential of *A. maritima* extract on acetaminophen- and CCl₄-induced liver damage. Journal of Ethnopharmacology, 47(1): 43-47.
- Karthikeyan, S., Sanjappa, M. and Moorthy, S.** (2009). Flora of India Series 4, Flowering plants of India Dicotyledons Vol.1. Botanical Survey of India, Howrah.
- Koul, M.K. and Bakshi, S.K.** (1984). Studies on the genus *Artemisia* L. in North-West with particular reference to Kashmir. Folio Geobotanica et Phytotaxonomica, 19.
- Ling, Y.R.** (1991a). The old world Seriphidium (compositae). Bull. Bot. Res. Harbin. 11(4):1-40.
- Ling, Y.R.** (1991b). The Old World *Artemisia* (Compositae). Bulletin of Botanical Research, Harbin. 12(1):1-108.
- Nazar, N. and Mehmood, T.** (2011). Morphological and molecular characterization of selected *Artemisia* species from Rawalkot, Azad Jammu and Kashmir. Acta. Physiol. Plant, 33:625-633.
- Pellicer, J., Garcia, S., Granatje, T., Hidalgo, O., Korobkov, A.A., Dariima, S. and Valles, J.** (2007a). Chromosomes counts in Asian *Artemisia* L. (Asteraceae) species: from diploid to first report of the highest polyploidy in the genus. Botanical Journal of Linnean Society, 153:301-310.
- Pellicer, J., Garcia, S., Granatje, T., Hidalgo, O., Korobkov, A.A., Dariima, S. and Valles, J.** (2007b). Chromosome number in some *Artemisia* (Asteraceae, Anthemideae) species and genome size variation in its subgenera *Dracunculus*: Karyological, systematic and phylogenetic implications. Chromosome Botany, 2:45-43.
- Podlech, D. and Barder, O.** (1974). Chromosomenstudien an Afghanischen Pflanzen II. Mitteilungen der Botanischen Staatssammlungen München, 11:457-488.
- Podlech, D. and Dieterle, A.** (1969). Chromosomenstudien an Afghanischen Pflanzen. Candollea, 24:185-243.
- Sharma, B.M. and Kachroo, P.** (1981). Flora of Jammu. Bishen Singh Mahendra Pal Singh, Dehradun.
- Sharma, I., Sharma, E. and Sharma, N.** (2015). Resource allocation in relation to meiotic system in two species of *Artemisia* abounding North-West Himalayas. Caryologia, 68(4):351-356.
- Singh, H.P., Kaur, S., Mittal, S., Batish, D.R. and Kholi, R.K.** (2009). Essential oils of *Artemisia scoparia* inhibits plant growth by generating reactive oxygen species and causing oxidative damage. J. Chem. Ecol. 35:154-162.

*Corresponding Author

Valecha, N., Biswas, S., Badomi, V., Bhandari, K.S. and Sati, O.P. (1994). Antimalarial activity of *Artemisia japonica*, *A. maritima* and *A. nilagirica*. Indian Journal of Pharmacology, 26:144-146.

Valles, J. and Mc Arthur, E.D. (2001). *Artemisia* systematic and phylogeny: cytogenetic and molecular in sights. In: McArthur ED & Fairbanks DJ (eds) Shrub land ecosystem genetics and biodiversity; 2000 June 13-15 Provo, UT Ogden: US department of agriculture forest service, Rocky Mountain research station pp. 67-74.

Valles, J. (1987b). Contribucion al estudiode las razas ibericas de *Artemisia herba-alba* Asso. Boletim da Sociedade Broteriana, 60(2):5-27.

Valles, J. and Garnatje, T. (2005). *Artemisia* and its allies: genomeorganization and evolution and their biosystemetic, taxonomical andphylogenetic implications in Artemisiinae and related subtribes (Asteraceae, Anthemideae). In: Sharma A. (ed) Plant Genome:Biodiversity and Evol., Vol. 1B: Phanerogams. Science Publishers, Enfield, New Hampshire, pp. 255-285.

Zargari, A. (1990). Medicinal Plants, Vol.3, University of Tehran Press. Tehran.