

Ecological and phytochemical studies on some Asteraceous plants of hanumangarh district, Rajasthan (*Xanthium strumarium*)

B.B.S. Kapoor¹, Mukesh Kumar Sharma²

¹Herbal Research Laboratory, Dungeer College, Bikaner- bbskapoor@rediffmail.com

²Ph.D scholar J.J.T. University Jhunjhunu- mukesh_sh8440@yahoo.com

INTRODUCTION

Hanumangarh is a city in northern Rajasthan state in western India, situated on the banks of the river Ghaggar. Hanumangarh district, situated at 29° 5' to 30° 6' North and 74° 3' to 75° 3' east, shares its boundaries with Haryana state in the east, Srianganagar district in the west, Punjab state in the North and Churu district in the South. The geographical area of the district is 9656.09 Sq. Km. The climate of the district is semi-dry, extremely hot during the summer and extremely cold during winter. The maximum average temperature remains 18° to 48° and minimum average is 2° to 28° celcius. The average rainfall during the year is 225 to 300 mm.

The Hanumangarh district also has a significant place in the ancient history. The remains found at Kalibanga [Pilibanga] in 1951 reveal that this area was a part of nearly 5000 years old "INDUS VALLEY" civilization. The remains of human skeleton, unknown scripts, stamps, coins, utensils, jewellery, toys, statues, wells, bathrooms, fort, streets, markets etc., found in excavation tell the story of well developed life style of our ancestors. Besides Kalibanga, more than 100 other places are also there in the district where evidences of this old civilization have been found. The remains found at these places have been kept at Museum at Kalibanga and National museum at Delhi. This region of Rajasthan is very rich Asteraceous plants. Studies to identify and explore Ecological and phytochemical studies on some Asteraceous plants.

GENERAL IMPORTANCE OF THE REPRODUCTIVE

Ecological and phytochemical studies on *Xanthium strumarium* (Rough Cocklebur, Clotbur, Common Cocklebur, Large Cocklebur, Woolgarie Bur) is that it is a species of annual plants belonging to the Asteraceous family. The species is monoecious, with the flowers borne in separate unisexual heads: staminate (male) heads situated above the pistillate (female) heads in the inflorescence. The pistillate heads consist of two pistillate flowers surrounded by a spiny [involucre]. Upon fruiting, these two flowers ripen into two brown to black achenes and they are completely enveloped by the involucre, which becomes a [bur]. The bur, being buoyant, easily disperses in the water for plants growing along waterways. However, while small quantities of parts of the mature plants may be consumed, the seeds and seedlings should not be eaten in large quantities because they contain significant concentrations of an extremely toxic chemical, carboxyatratyloside. The mature plant also contains at least four other toxins.

REVIEW OF LITERATURE

Asteraceous is an economically important family. Some members provide products including cooking oils, lettuce, sunflower seeds, artichokes, sweetening agents, coffee substitutes and teas. Several genera are popular with the horticultural community, including marigold, pot marigold (also known as calendula), cone flowers, various daisies, fleabane, chrysanthemums, dahlias, zinnias, and heleniums. Asteraceous are important in herbal medicine, including *Grindelia*, *echinacea*, yarrow and many others. A number of species have come to be considered invasive, including, most notably in North America, dandelion, which was originally introduced by European settlers who used the young leaves as a salad green.

Roots and stems:

Asteraceous generally produce taproots, but sometimes they possess fibrous root systems. Stems are generally erect, but can be prostrate to ascending. Some species have underground stems in the form of caudices or rhizomes. These can be fleshy or woody depending on the species.

Leaves :

The leaves and the stems in hanumgarh region very often contain secretory canals with resin or latex (particularly common among the Cichorioideae). The leaves can be alternate, opposite, or whorled. They may be simple, but are often deeply lobed or otherwise incised, often conduplicate or revolute. The margins can be entire or lobed or toothed.

Fruits and seeds

The fruit of the Asteraceae is achene-like, and is called a cypsela (plural cypselae). Although there are two fused carpels, there is only one locule, and only one seed per fruit is formed. It may sometimes be winged or spiny because the pappus, which is derived from calyx tissue often remains on the fruit (for example in dandelion). In some species, however, the pappus falls off (for example in Helianthus).

REFERENCES

1. Everitt, J.H.; Lonard, R.L., Little, C.R. (2007). Weeds in South Texas and Northern Mexico. Lubbock: Texas Tech University Press. ISBN 0-89672-614-2. Atlas of Florida Vascular Plants (English)
2. Calflora Taxon Report 8367 Xanthium strumarium L. Weaver, S.E.; Lechowicz, M.J. (1982). The biology of Canadian weeds. 56. 'Xanthium strumarium' L. 'Canadian Journal of Plant Science'.
3. Kamboj Anjoo, Saluja Ajay Kumar "Phytopharmacological review of Xanthium strumarium L. (Cocklebur) 2010 | Volume: 4 | Issue Number: 3 | Page: 129-139 Islam, MR; Uddin MZ, Rahman MS, Tutul E, Rahman MZ, Hassan MA, Faiz MA, Hossain M, Hussain M, Rashid MA. (Dec 2009).
4. "Ethnobotanical, phytochemical and toxicological studies of Xanthium strumarium L". Bangladesh Medical Research Council bulletin 35 (3): 84–90. PMID 20922910.
- 5 www.wikipedia.org/wiki/Hanumangarh_district
- 6 www.hanumangarh.nic.in/index.htm
7. www.wikipedia.org/wiki/Hanumangarh
8. Aminuddin (1977). Production of amino acids in *Ephedra foliata* suspension culture. *Current Science* 46: 525-526.
9. Scott, L.; Cadman, A; McMillan, I (2006). "Early history of Cainozoic Asteraceae along the Southern African west coast". *Review of Palaeobotany and Palynology* 142: 47. doi:10.1016/j.revpalbo.2006.07.010.

10. Germplasm Resources Information Network (GRIN). "Family: Asteraceae Bercht. & J. Presl, nom. cons.". Taxonomy for Plants. USDA, ARS, National Genetic Resources Program, National Germplasm Resources Laboratory, Beltsville, Maryland. Retrieved 2008-06-12.

11. Stevens, P. F. (2001 onwards) Angiosperm Phylogeny Website. Version 9, June 2008

<http://www.mobot.org/mobot/research/apweb/welcome.html>

12 Jeffrey, C. 2007. Compositae: Introduction with key to tribes. Pages 61-87 in Families and Genera of Vascular Plants, vol. VIII, Flowering Plants, Eudicots, Asterales (J. W. Kadereit and C. Jeffrey, eds.). Springer-Verlag, Berlin

13 Panero, J.L., Crozier, B.S. Tree of Life - Asteraceae <http://tolweb.org/Asteraceae/20780>

14 International Code of Botanical Nomenclature. In point 18/5 states: "The following names, used traditionally, are considered valid: Compositae (Asteraceae...).