

# Electronic herbarium and Digital database of some weeds in Digras tahsil of Yavatmal District (MS), India

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## Abstract

Digital herbarium database includes virtual images of plant specimens in digital format. This form of digital database herbarium is quite different from the traditional herbarium. In this form, the herbarium data is stored and made available to the taxonomists electronically. Weeds are self-grown plants which occur in gardens, fields, agricultural lands, roadsides, moist and water logged places. They are self-grown unwanted plants which grow out of place and time. Presence of weeds creates many problems like decreased crop production, reduced crop quality, loss of animal products, loss of animal health, harmful effect on human health, adverse effect on industrial areas, aquatic ecosystem etc. Present study is based on taxonomic enumeration of weeds in Digras tahasil of Yavatmal district.

**Keywords-** Digital herbarium database, weeds, Digras, Yavatmal.

## 1. Introduction

Weeds are the plants that grow by themselves in the agricultural lands, gardens and on the roadsides etc. In plant kingdom, weeds are not classified in any particular group. Instead, any plant which grows in any place as an undesired one comes in the class of weeds. In fact, a weed is a plant which grows where it is not required to grow [1]. For example, *Eclipta prostrata* L., *Achyranthes aspera* L. are very important medicinal plants but in crop fields they occur as troublesome weeds. [2, 3]. Presence of weeds decreased the crop quality in many ways. While growing with agricultural crops, weeds cause various problems in crop yields such as decreasing the productivity,

quality of crop yields and increasing the production cost of agro products, Several scientists have reported that presence of weeds cause 15- 30% reduction in production of wheat and 30-35% reduction in rice. Contamination of crop grains with weed's seeds decreases the quality of grains as well as sometime creates poison. Quantity and quality of leafy vegetables is reduced up to a great extent due to the presence of weeds. The vegetable and fruits are discoloured and deshaped in the high presence of weeds [4].

Weeds such as *Achyranthes aspera* L. etc. cause sores in the mouth, skin, tails and trunks of animals once nipped. Weed once grow in water, aquatic weeds repulse and decline the quality of water. They hinder navigation and fishing. Water flow in irrigation canals is slowed down. Dry weeds are basically responsible for forest fires [5].

A number of weeds are economically important. They are used as herbal drugs. Some of them are used as raw material for several forest based industries. The present study deals as taxonomic enumeration of some weeds in Digras tahsil of Yavatmal district. Rainy season follows summer and extends from end of July 2018 – September 2019. South-East monsoon is responsible for rains during this season. The wettest months of season are July and August. Rainy season provides favourable conditions for growth of plants because the relative humidity is high in the season and temperature. The herbaceous plants show active vegetation growth during the season. The season is very favorable for the germination of seeds of winter annuals.

## 2. Materials and Method

Several field survey, trips were organized during July 2018 – September 2019 in Digras tahsil of Yavatmal district. Digital photograph of plants in their natural habitat or in dried form with special attention to some important features for identification and database were prepared by using digital camera, computer and software package DELTA (Descriptive Language for

Taxonomy – worldwide accepted package). When taxonomic descriptions were prepared for input to computer programmes, the form of the coding was usually dictated by the requirement of a particular programme or set of programmes. The DELTA was designed primarily for the easy use by people rather than for convenience in computer programming and is versatile enough to replace the written description as the primary means of recording data. The system is capable of encoding all of the types of character commonly used for identification and classification. The programme possesses intekey file through which, we can distinguish two or more than two taxa based on any defined character. DELTA includes intimate, a programme its purpose is to aid the developer in associating images with particular character or taxon and in the placement of various forms of annotation of these images.

## 3. Systematic description:

### *Achyranthes aspera* L.

Family: Amaranthaceae

Erect ascending herbs, 0.8-4 m high; Stems tough, becoming woody at the base. Leaves opposite, simple and ovate, up to 10 cm long by 8 cm wide, tapering to a point at both ends and shortly stalked, the blades entire. Inflorescences terminal and axillary, spicate, erect, many-flowered; becoming elongate, with only a few flowers open at the same time; flowers hermaphrodite, solitary in axils of acute, membranous, persistent bracts. Individual flowers are small, with five white to pink or greenish tepals and white filaments, and form narrow, elongated terminal spikes up to 60 cm long. As the flowers age, they bend downwards and become pressed closely against the stem. The bracts surrounding the flowers in the fruiting stage have sharp, pointed tips making the heads spiny to the touch. Fruits are capsules, orange to reddish purple or brown, 3-5 mm long. Ovary is 1-seeded.

### *Eclipta prostrata* L.

Family: Asteraceae

Herbs, up to 25 cm high; stems terete, appressed strigose. Leaves simple, opposite, 1-3 x 0.2-0.5 cm,

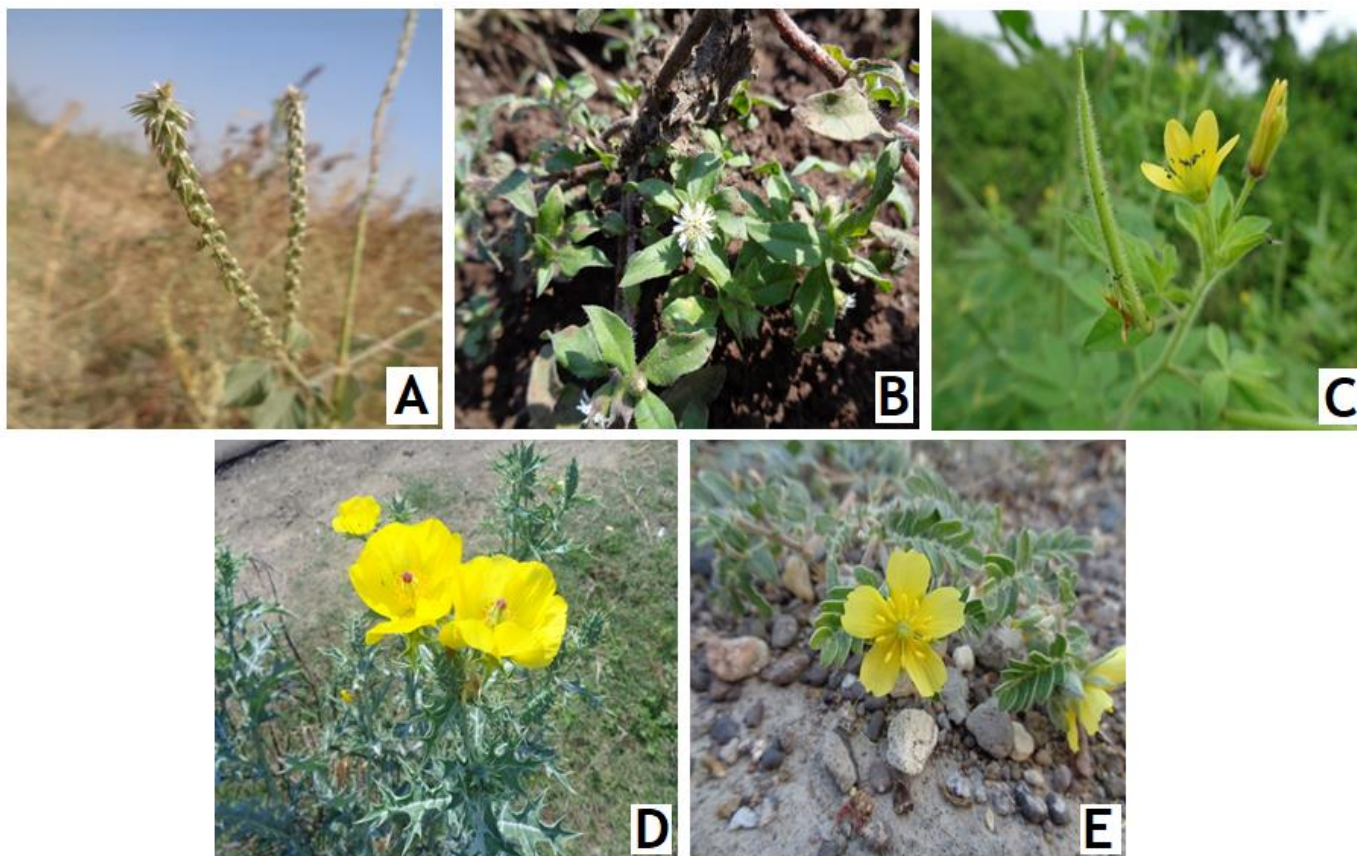
oblong, acute or subacuminate at apex, cuneate at base, entire, densely strigose, subsessile. Heads 1 cm across; peduncles appressed strigose, 2-4 mm long. Involucral bracts in 2 rows; outer bracts 5, ovate-elliptic, subacuminate at apex, cuneate at base, strigose outside, glabrous inside, with 9 veins; inner bracts 5, elliptic-obovate, subacuminate at apex, cuneate at base, sparsely strigose outside, glabrous inside, with 4 veins. Ray florets 2-3- seriate, female, 4 mm long; sepals minute, ovate, acute, membranous; corolla 2.5 mm long, with 2 unequal, obtuse-tipped lobes at apex. Disk florets numerous, 3 mm long; corolla campanulate, 1.6 mm long; lobes 4, ovate, ciliate on margin; stamens 4 or 5, sagittate; style branches 2, pubescent; ovary 1.1-1.2 mm long, hairy at apex; palea 2.2 mm long, hairy in the upper two-third portion. Achenes yellowish brown to brown, oblong-turbinate, dorsiventrally compressed

and sharply angled, hairy at apex; pappus of partially or completely united scales forming a cone at the apex.

*Cleome viscosa* L.

Family: Capparidaceae

Erect profusely branched woody annual herbs. The whole plant viscous with stalked glandular hairs. Leaves 5-7 foliolate; leaflets subsessile, 0.6-3.5 x 0.3-2 cm, elliptic-oblong, base cuneate, margins ciliate, apex obtuse, membranous, glandular pubescent; petiole up to 5 cm long. Racemes terminal, lax, few-flowered. Flowers 1-1.5 cm across; pedicels to 1 cm long, elongate during fruiting. Sepals 4, lanceolate, apex acute, glandular hairy without. Petals 4, yellow, obovate to oblong, apex rounded. Stamens 12-18, broadened at tip; anthers linear. Ovary sessile, oblong-cylindric, glandular-hairy; stigma capitate. Capsules linear-oblong, terete, striate, densely glandular hairy.



**Figure 1** A: *Achyranthes aspera* inflorescence B: *Eclipta prostrata* inflorescence C: *Cleome viscosa* flower  
D: *Argemone maxicana* flower E: *Tribulus terrestris* flower



***Argemone maxicana* L.**

Family: Papavaraceae

An annual herb, up to 150 cm tall with a slightly branched tap root. The stem is erect, branched, usually prickly, pale bluish-green and exudes an unpleasant-smelling yellow sap when cut. Leaves are alternate, without petioles, more or less sheathing the stem, up to 15 cm long, deeply lobed with irregularly toothed, spiny margins; greyish-white veins are conspicuous on the bluish-green upper surface of the leaves. Flowers are solitary, 2.5-4.5 cm in diameter, subtended by 1-2 leafy bracts; sepals 3, prickly; petals 4-6, yellow to pale orange, glabrous; stamens numerous. Fruit is a capsule, spiny, 2.5-5 cm long and 2 cm wide, with 4-6 valves opening at the tip to release numerous seeds. Seeds are brownish-black, nearly spherical, oily.

***Tribulus terrestris* L.**

Family: Zygophyllaceae

An annual herb with a long, slender, branched tap-root. The greenish-red stems are up to 2 m long, branched, radiating from a central axis and covered with fine hairs. They are usually prostrate, forming flat patches, though they may grow more upwards in shade or among taller plants. The leaves are pinnately compound with leaflets less than a quarter inch long. Leaves, 3-7 cm long, are in opposite pairs with one of the pair slightly smaller than the other. Each leaf consists of three to eight pairs of opposite, oblong-lanceolate leaflets. The flowers are yellow, 5-petalled, 7 to 15 mm in diameter, solitary and borne on short stalks in the axils of the smaller of each pair of leaves; fruit is a woody burr, approximately 1 cm in diameter, which splits into 4 or 5 wedge-shaped segments (carpels), each with 2 unequal pairs of spines and containing 1-4 seeds. Seeds are yellow, variable in shape but more or less ovoid.

**4. Conclusion**

The present study is based on the study of weeds in Digras tahsil of Yavatmal district during July 2018 – September 2019. These weeds were collected during vegetative and reproductive periods, take onsite

photographs and studied their characteristics to prepare a digitized data. The specimens were critically examined and identified with the help of the available floras such as flora of Presidency of Bombay by T. Cooke, Flora of Maharashtra State (BSI) by Kartikeyan, Flora of Yavatmal district (BSI) by Kartikeyan. Most of the weeds are utilized as traditional, household, ethnic medicines. Many weeds are reported from the study area such as *Achyranthes aspera* L., *Eclipta prostrata* L., *Cleome viscosa*, L., etc. are used as traditional, ethnic, folk or household remedies. The present study may be helpful in the identification of some common weeds. This may be useful for taxonomy of agriculture and other related topics and their researchers.

**Conflict of interest**

No conflict of interest influenced in this research.

**5. References**

1. Parcker C. Weed problem in India, Pakistan and Ceylon. *PANS (C)*, 1968; 14(3) : 217-228
2. King LJ. *Weeds of the world*. Inter. Sci. Pub. I.N.C., N.Y., 1966; 10003, pp. 529.
3. Agnihotri N. A taxonomic study on rainy season weeds in Maitha block of Kanpur dehat district. *Asian Journal of Environmental science*, 2016; 11 (1) pp 30-33
4. Hoim LJ, Plucknett D, Pancho J and Herberger J. *The World's Worst Weeds: Distribution and Biology*. University of Hawaii Press, Honolulu, 1977; pp 609.
5. Agnihotri, Nikhil and Mohan, Narendra. Taxonomic studies of family Asteraceae in Kanpur district. In National seminar on global perspectives of Biological Resources in the Present Scenario; Dec. 7-8, D.G. College, Kanpur, 2010; pp.7.