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Checklist of Asteraceous alien weeds of Achanakmar Wildlife Sanctuary, Bilaspur CG

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Abstract

A field survey was conducted at different sites in Achanakmar Wild Life Sanctuary, Bilaspur Chhattisgarh, during different season of 2019-20 to identify the diversity and distribution of weed species growing in association with woody plant species and to determine their competitive ability against the infesting weeds. Present study deals with diversity and distribution of weeds in Forest area of AWLS, Bilaspur CG. The twenty seven species and 25 genera (most of the genus is monotypic) belonging to single family were identified.

Key words: Alien weed; Asteraceae; Diversity, AWLS

Asteraceae the largest family among the flowering plants of the world is distributed both tropical and temperate regions of the globe. Mabberley (1998), however, puts the global diversity figure of the family at about 22,750 species spreading over to 1,528 genera or Compositae is a large and widespread family of flowering plants. The family includes over 32,000 currently accepted species, in over 1,900 genera in 13 subfamilies. Asteraceae (*nom. alt.* Compositae), with its approximately 1600-1700 genera and more than 24,000 species, is the largest family of flowering plants (Funk *et al.*, 2009). The members of this group are found to occur in all the regions of the globe except Antarctica (Anderberg *et al.*, 2007).

The widespread family of flowering plants is the ubiquitous sunflower family (Asteraceae or Compositae). Asteraceae or 'Sunflower family' comprising about 25,000 species under 1100 genera is one of the largest vascular plants families of world**.** According to James L. Reveal of the University of Maryland (Personal communication, 2000), the family contains nearly 1550 genera and 24,000 species. The sunflower family is rivaled in size only by the orchid family (Orchidaceae) with approximately 20,000 species and the legume family (Fabaceae) with about 18,000 species. In fact, if all the known species of flowering plants on earth were randomly lined up, every fourth one would belong to the sunflower, orchid, or legume families. The sunflower family includes a great diversity of species, including annuals, perennials, stem succulents, vines, shrubs and trees. It is well-represented in parks and gardens throughout the world, with bedding plants,

ground covers and shrubs. Familiar common names, such as Daisies, Marigolds, Zinnias, Gazanias, Gerberas, Chrysanthemums, Dandelions, Thistles, Ragweed, Sagebrush, Cosmos and Dahlias all belong to this family.

Asteraceae is a predominant temperate family, and most of the members of this family are distributed in the temperate regions of the globe. In India, most of the taxa (955) of Asteraceae, which is about 72.67% of the total Asteraceae in India, are found to be located in the temperate regions of Himalaya and the north-east part of India. The chief centre of diversity of the Indian Asteraceae is the Himalayan biogeographic zone. This is due to its variable climatic condition and altitudes, which in turn have resulted in diverse habitats, from the cold deserts of Ladakh in the Trans-Himalayan biogeographic zone to the evergreen tropical and temperate forests of north-east India. There are 202 taxa of Asteraceae which are endemic to the Indian region. All the exotic taxa of Asteraceae have been broadly divided into 18 major categories. It is also very interesting to note that there are 30 taxa which are considered as rare, endangered and threatened. Based on the distribution of these 1314 taxa of Asteraceae, the Indian region can be divided in to 12 phytogeographical zones, in comparison to the classification of the Indian region into 11 phytogeographical zones as suggested by Balakrishnan in 1996.

Achanakmar Wild life sanctuary is part of Achanakmar- Amarkantak Biosphere Reserve (AABR) is situated between latitude 220 15’ to 220 58’ N and longitude 810 25’ to 8205’ E, having an area of 3283.96 sq. km serves as buffer zone of the Biosphere Reserve. A good number of tribal communities are living Chattisgarh. Out of this, an area of 1224.98 sq. km falls in Madhya Pradesh and the rest of the area of 2058.98 sq. km falls in Chhattisgarh. The boundaries of the Achanakmar- Amarkantak Biosphere Reserve pass through Dindory and Anuppur district of Madhya Pradesh and Bilaspur districts of Chhattisgarh State. The phytogeographic regions are represented in the study area as follows: Bilaspur (68.1%), Anuppur (16.2%) and Dindory (15.7%) districts. The entire core zone area falls in Chhattisgarh State. It includes one Protected Area (PA) viz, Achanakmar sanctuary lying in Bilaspur district with a total geographical area of **551.15** sq. km1-4.

According to 1991 census there are 416 villages and two urban settlements in the Reserve comprising a total human population of 3,38,738 (EPCO 2005). AWLS have been identified as one of the richest biodiversity centre of the central India. It is interesting to note that in the area, proportion of genera is relatively richer than the species. Most of land are undulating and covered with thick subtropical hill forest. They are partially or completely dependent on forest products for their survival. Vegetation of area is described as tropical moist deciduous forest. Floristically it is rich in plant diversity as combination of different climatic and edaphic conditions at various altitudes give rise to rich and luxuriant vegetation which is one of a few richest in central India.

There has been much contribution made in publishing records of family Asteraceae by various workers. So far, there is no published record of Asteraceae from BR of M.P. & C.G. Therefore, extensive surveys of Asteraceous plants were carried out during 2019-2020 in different forest area of AWLS. The lists of the plant species have been prepared in alphabetical (**Table 1**).

Table1. Representing the Asteraceous common weeds of AWLS, Bilaspur CG

Sr. No.	Botanical Name	Common name	Locality in AWLS
1	*Acanthospermum hispidum* DC	Gokhru	Achananmar, Lamni, Chaparwa, Shivtarai
2	*Acmella paniculata* (Wall ex DC) Jansen	Akarkara	Achananmar, Lamni, Chaparwa, Shivtarai, Tilaidabra
3	*Acmella oleracea* (L.) Jansen	Akarkara	Lamni, Achanakmar
4	*Adenostemma lavenia* (L.) Kuntz.	Stisky daisy	Lamni, Ataria
5	*Ageratina riparia* (Regel) King & Rob.	Creeping crofton weed	Achananmar, Lamni, Chaparwa
6	*Ageratum conyzoides* L.	Billygoad weed	Achananmar,Lamni, Chaparwa, Shivtarai, Tilaidabra
7	*Bidens pilosa* L.	Spanish needle	Lamni, Achanakmar
8	*Bidens biternata* (Lour.) Merr.& Sherff	Spanish needle	Lamni, Achanakmar, Ataria, Chaparwa
9	*Blainvillea acmella* (L.) Philp.	Para Cress flower	Achananmar, Lamni
10	*Blumea lacera* L.	Lettuce-Leaf Blumea	Achananmar, Lamni, Chaparwa, Tilaidabra
11	*Caesulia axillaris* Roxb.	Pink-node Flower	Achanakmar
12	*Chromolaena odorata* (L.) King & Rob.	Siam Weed	Achananmar, Lamni, Chaparwa
13	*Cyanthillium cinereum* (L.) Rob.	Sahdehi	Achananmar, Lamni
14	*Eclipta prostata* (L.) L.	Bhringraj	Achananmar, Lamni, Chaparwa, Shivtarai, Tilaidabra
15	*Elephantopus scaber* L.	Elephant foot	Achananmar, Ataria Lamni, Chaparwa,Tilaidabra, Shivtarai,
16	*Emilia sonchifolia* Regal	Purple sow Thistle	Lamni, Ataria
17	*Galinoga parviflora* Cav.	Quick weed	Achananmar, Chaparwa
18	*Lagascea mollis* Cav.	Silk Leaf weed	Achananmar, Lamni, Chaparwa, Shivtarai
19	*Launea procumbens* (Roxb.) Ramayya & Rajgopal	Creeping Launea	Achananmar, Lamni, Chaparwa, Tilaidabra
20	*Parthenium hysterophorus* L.	Gajar ghas	Achananmar, Lamni, Chaparwa, Shivtarai, Tilaidabra, Ataria
21	*Pentanema indicum* (L.)Ling.	Sonkadi	Achananmar, Lamni
22	*Sclerocarpus africanus* Jacq.	African bonebract	Lamni
23	*Sclerocarpus diverticatus* (Benth) Benth. & Hook.	-	Achanakmar, Tilaidabra, Ataria
24	*Sphaeranthus indicus* L.	Gorakhmundi	Achananmar, Lamni, Chaparwa, Shivtarai
25	*Synedrella nodiflora* (L.) Geart.	Cindrella weed	Achananmar, Lamni
26	*Tridax procumbens* L.	Coat buttons	Achananmar, Lamni, Chaparwa, Tilaidabra
27	*Xanthium strumarium* L.	Badi Gokhru	Achananmar, Lamni, Chaparwa, Shivtarai,

Conclusion

Asteraceae comes as the fourth largest family in India. Most Asteraceous weeds grew well after the grasses in Achanakmar Wild Life Sanctuary, Bilaspur CG, but no research has been conducted on these valuable plants. It should give emphasis on in-situ and ex-situ conservation of rare Asteraceous species on taxonomy and ecological point of view. The present plant species diversity study survey showed that *Bidens, Sclerocarpus* and *Acmella* are represented by the two species in the area. Most of the genera were represented by only one species. Another weed like *Parthenium, Xanthium, Pentanema* and *Caesulia* were found to be frequently. *Acanthospermum, Ageratum, Parthenium, Xanthium, Pentanema,* and *Caesulia* are the most common weeds in the fields of Patalkot Valley. Few taxa such as *Parthenium hysterophorus, Xanthium strumarium, Tridax procumbens, Ageratum conyzoides* and *Acanthospermum hispidum* dominate practically all the areas and are common weeds. Though, some taxa are weeds but rural and tribal people utilize them as medicines.

Asteraceae members exhibits high ecological amplitude and easily adapt to literally all habitat conditions, still there are a number of species, which are unable to survive competition with other floristic elements. In Asteraceae many species are exotic but some of them used as traditional remedies and edible food. Conservation activities should be concerned with all medicinally important species to create awareness study on invasive species and ethno botanical information with ecological studies of Asteraceae. Mukherjee 2002, reported 116 arboreal genera of Asteraceae and their distribution. Recently Rao et al., (1988) enumerated 1052 taxa of Asteraceae from within the present political boundaries of India. Subsequently, the detailed, revised taxonomic account of the family in India comprising 892 species, 37 subspecies, 123 varieties and 13 forma in 167 genera. State wise distribution of Asteraceae Jammu & Kashmir, with about 481 species (Singh et al., 1999) has the largest representation of the family in India, and in Madhya Pradesh only 106 species. Out of 106 species about 73% species found within this Achanakmar-Amarkantak Biosphere Reserve. Asteraceae is second dominant family, after Poacaeae in Biosphere Reserve.

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