International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Diversity of Weed Species from Sakti District Chhattisgarh

Pooja Chaudhary[1], Anshu Deep Khalkho[2], Deepak Kumar Soni[3]

[1,2]Bharti Vishwavidyalaya, Durg, C.G., Department of Botany
[3]C. V. Raman University, Department of Life Science

ABSTRACT

Weeds are common and notorious plants which are sometimes more harmful than fungi, virus, bacteria, insects or crop pests. Among the major biotic factors, weeds are considered as the most noxious to agriculture besides affecting natural water bodies and agrobiodiversity. It also disturb the crop production directly and indirectly, by competing with the crop for sheltering crop pests, resources, interfering with water management, reducing the quality and yield, and subsequently increasing the cost of processing. A survey of Sakti district, Chhattisgarh was conducted for the collection of weed plants. Here we surveyed and collected weed plants from different sites of grassland, roadsides, nurseries, gardens, crop field and bare lands. The diversity of weed in Sakti is practically unknown and therefore, it represents an unknown part of global weed diversity. Weed species recognition was done on the basis of book, monographs and literature survey. The survey was conducted during the month of September, October and November. We come through unique weed diversity, in total we collected thirty eight weed species representing nineteen families of which maximum weed species is collected from Asteraceae family. Total 38 weed species were collected of 19 plant families, maximum weed species is from Asteraceae family with 7 plant species, 6 from Poaceae family, 4 from Amaranthaceae and Cyperaceae family, 2 from Euphorbiaceae and Fabaceae family, and 1 each from Aizoaceae, Apocynaceae, Cleomaceae, Commelinaceae, Lamiales, Linderniaceae, Malvaceae, Onagraceae, Papaveraceae, Phyllanthaceae, Polygonaceae, Rubiaceae and Verbenaceae family.

Keywords: weed, plant species, diversity, Sakti

INTRODUCTION

Chhattisgarh state is situated in central India. The state is known for maximum varieties of plant species (6). Sakti district is situated in central east of Chhattisgarh state. It is a hill station situated on the bank of Borai river and foot hills of Udaigiri mountain range of Chhattisgarh. The name of city is derived from old temple of Maa Mahamaya, situated in the heart of Sakti. Gopalpur is one tensil which falls under Sakti district.

Weed plants are pioneer of land that increases the diversity of plants and agricultural land by utilizing the environmental potential. They are very common and notorious plants which are sometimes more harmful than fungi, virus, bacteria, insects or crop pests (4). Among the major biotic factors, weeds are considered as the most noxious to agriculture besides affecting natural water bodies and agrobiodiversity. It also disturb the crop production directly and indirectly, by competing with the crop for sheltering crop pests, resources, interfering with water management, reducing the quality, yield, and

subsequently maximize the cost of processing (12).

The diversity of weed plants increases by different cropping system and maximizes crop production. Study of weed biology was started at early 1930s. A study was performed by Pavlychenko (1937), and described the significance of weed and crop interaction (10). In northeast Bell *et al.* in 1962 published a series of "The Biology of Canadian Weeds", including more than 100 weed species to support the significance of weed in early 1970s (1)(2).

Maximum weeds has these characteristics. Firstly weeds are close to human habitats which helps in their dispersal. Secondly rapid multiplication and dominate near by plants. Thirdly, tolerate a wide sphere of environmental conditions and high regenerative capacity. These are some features for successfully survival of weeds lift ups: ability to invade and suppress near by plant community. Weeds are usually vascular plants that able to effect human health and human activities, and distasteful change to plant community. Change is seen every year in weed diversity, one plant species increases drastically while other declines and some time it comes to extinction, however some plant species remain constant.

Impact of weeds can be observed at two levels, damage to product yield and to the value of that product, secondly the damage occurred in each season and the consistency of weed damage from one cycle of production to another which cause similar damage. If weeds are left uncontrolled it can cause crop damage and reduce the crop yield by 80%. The behaviour of weed plant depends on nature of environment. The favourable environment for a weed species offers maximum capacity for weed growth and the weak environment offers minimum or no growth. Weed plants renews annually from seed and is distributed in a homogeneous manner (3).

Weeds are a obstacle in agriculture, and by competing with crops for minerals, water, light and space, they decrease the productivity of agricultural products. Under favourable conditions of high fertility i.e appropriate weather and abundant soil moisture, weeds increase the potential for lush growth (8). The weeds are very common, predominant and spread out not only to grain fields but also to unused areas. All over the world today in

thousands of plants, mainly weeds are medicinal plants (5).

Few weed species helps in ecosystem functioning and support faunal diversity, when share same land with weeds (13). It is advised to select the different crop combinations as mixed cropping for controlling weed species as well as getting higher grain yield from crops (9).

MATERIALS AND METHODS

Before going to field proper information of location, diversity of weed plants, location of river, waterfall and pond were taken from villagers and local people. Survey was conducted in grassland, roadsides, nurseries, gardens, crop field and bare lands. All necessary equipment's were carried i.e scissor, secateurs, polythene bags, marker and rubber bands. Plants were collected in polythene bags with a information tag of area, date of collection, location and local name of the plant name. Photographs were clicked at various angles. Samples were properly pressed, dried under herbarium plant press between blotting paper and are changed at short intervals in the alternate days and subsequently at longer intervals till the specimens were completely pressed and dried. The completely dried and pressed specimens were carefully placed in herbarium file.

Weeds were identified and confirmed from (7) and (11).

Map. 1. Chhattisgarh map:Coloured portion indicates Sakti district.

RESULT

Scientific name	Common name	Family
Achyranthes aspera L.	Devil's horsewhip	Amaranthaceae
Acmella oleracea (L.) R.K. Jansen	Toothache plant	Asteraceae
Ageratum conyzoides L.	Chick weed	Asteraceae
Alternanthera sessilis (L.)R.Br.	Sessile joyweed	Amaranthaceae
Argemone maxicana	Mexican prickly poppy	Papaveraceae
Amaranthus spinosus L.	Spiny pigweed	Amaranthaceae
Calotropis procera	Milkweed	Apocynaceae
Celosia argentea	Cocks comb	Amaranthaceae
Cleome viscosa	Tick weed	Cleomaceae
Commelina benghalensis L.	Tropical spiderwort	Commelinaceae
Croton bonplandianus Baill.	Herbe diable	Euphorbiaceae
Cynodon dactylon	Barmuda grass	Poaceae
Cyperus compressus	Poorland flatsedge	Cyperaceae
Cyperus difformis	Variable flatsedge	Cyperaceae
Cyperus eragrostis	Pale galingale	Cyperaceae
Cyperus rotundus	Purple nutsedge	Cyperaceae
Dactyloctenium aegyptium	Cowfoot grass	Poaceae

Digitaria sanguinalis	Large cabgrass	Poaceae
Echinochloa colona	Jungle rice	Poaceae
Eclipta prostrata	False daisy	Asteraceae
Eleusine indica	Goose grass	Poaceae
Euphorbia hirta	Asthma weed	Euphorbiaceae
Grona triflora (L.) H. Ohashi & K. Ohashi	Creeping tick trefoil	Fabaceae
Lantana camara L.	Wild sage	Verbenaceae
Lindernia crustacea (L.) F.Muell.	Malayssian false pimpernel	Linderniaceae
Ludwigia perennis L.	Water primrose	Onagraceae
Mesosphaerum suaveolens (L.) Kuntze,	Vilayti Tulsi	Lamiales
Oldenlandia herbacea	Slender oldenlandia	Rubiaceae
Parthenium hydterophorus	Congress grass	Asteraceae
Persicaria lapathiflolia	Pale smartweed	Polygonaceae
Phyllanthus niruri	Gale of the wind	Phyllanthaceae
Scorzonera humilis	Viper grass	Asteraceae
Senna tora L.	Sickle pod	Fabaceae
Sida acuta	Common wirewood	Malvaceae
Trianthema portulacastrum	Horse purslane	Aizoaceae
Tridax procumbens	Coatbutton	Asteraceae
Urochloa ramosa	Browntop millet	Poaceae
Xanthium strumarium L.	Rough cocklebur	Asteraceae

Table 1: Scientific name, common name and family of weed species

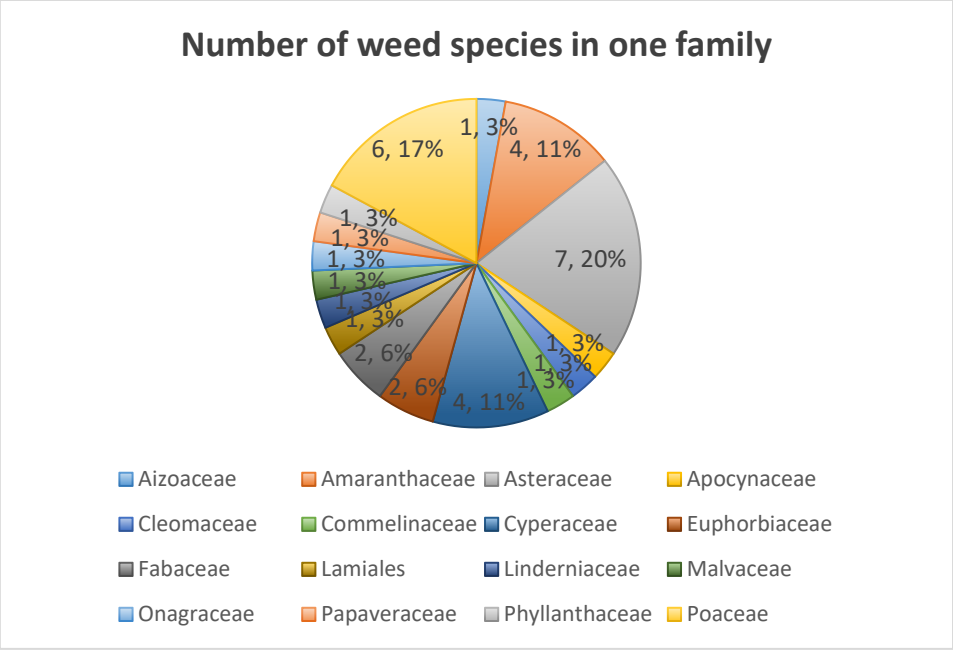

Chart 1: Number of weed species in each family

Family	No. Of weed species in a family	Family	No. of weed species in a family
Aizoaceae	01	Linderniaceae	01
Amaranthaceae	04	Malvaceae	01
Asteraceae	07	Onagraceae	01
Apocynaceae	01	Papaveraceae	01
Cleomaceae	01	Phyllanthaceae	01
Commelinaceae	01	Poaceae	06
Cyperaceae	04	Polygonaceae	01
Euphorbiaceae	02	Rubiaceae	01
Fabaceae	02	Verbenaceae	01
Lamiales	01		

Table 2: Weed family name and number of weed species in each family

CONCLUSION

Total 38 weed species were collected of 19 plant families, maximum weed species is from Asteraceae family with 7 plant species, 6 from Poaceae family, 4 from Amaranthaceae and Cyperaceae family, 2 from Euphorbiaceae and Fabaceae family, and 1 each from Aizoaceae, Apocynaceae, Cleomaceae, Commelinaceae, Lamiales, Linderniaceae, Malvaceae, Onagraceae, Papaveraceae, Phyllanthaceae, Polygonaceae, Rubiaceae and Verbenaceae family.

BIBLIOGRAPHY

1. Bell, R. S., W. H. Lachman, E. M. Rahn, and R. D. Sweet. 1962. Life History Studies as Related to Weed Control in the Northeast. I. nutgrass. Kingston, R1: Rhode Island Agricultural Experiment Station Bull. 364. 33 p.
2. Bhowmik, P. C. (1997). Weed biology: importance to weed management. *Weed science*, *45*(3), 349-356.
3. Cousens, R., & Mortimer, M. (1995). *Dynamics of weed populations*. Cambridge University Press.
4. Gharde, Y., Singh, P. K., Dubey, R. P., & Gupta, P. K. (2018). Assessment of yield and economic losses in agriculture due to weeds in India. *Crop Protection*, *107*, 12-18.
5. Hassan, S. (2020). Positive aspects of weeds as herbal remedies and medicinal plants. Journal of Research in Weed Science, 3(1), 57-70.
6. Khalkho, A. D., & Rai, A. N. Checklist of Foliicolous fungal diversity: Ambikapur, Chhattisgarh.
7. Naidu, V.S.G.R. (2012), *Hand Book on Weed Identification* Directorate of Weed Science Research, Jabalpur, India.
8. Nayak, S., Biswas, D., & AbhismitaRoy, D. V. R. (2023). Study of Weed Flora in the Central Region of Chhattisgarh: A Scientific Survey. *Bull. Env. Pharmacol. Life Sci*, *12*, 47-53.
9. Pan, R. S., Sarkar, P. K., Shinde, R., Kumar, R., Mishra, J. S., Singh, A. K., & Bhatt, B. P. (2019). Effect of diversified cropping system on weed phytosociology. *International Journal of Chemical Studies*, (Special Issue 6), 677-683.
10. Pavlychenko, T. K. 1937. Quantitative study of the entire root system of weed and crop plants under field conditions. Ecology 18:62-79.
11. Pl@ntnet (2009) retrived from https://plantnet.org/en/.

12. Zimdahl, R.L., 2013. Fundamentals of Weed Science, fourth ed. Academic Press.
13. Zingsheim, M. L., & Döring, T. F. (2024). Does weed diversity mitigate yield losses?. *Frontiers in Plant Science*, *15*, 1395393.