

Prospective Study of Weeds in Bilaspur Region (Chhattisgarh) for their Applicability as Antimicrobial Agents

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Abstract: Weeds are generally considered as undesirable & unwanted plants which cause enormous direct & indirect losses. Weeds are a serious problem in agriculture, and by competing with crops for water, minerals, space and light, they significantly reduce the productivity of agricultural tendencies. Under good conditions and abundant soil moisture, weeds also show enhanced potential for growth. The goal of the current research was to determine the antimicrobial capabilities of obnoxious weeds in the central region of Chhattisgarh. The 5 weeds collected were found to have strong smell, spiny leaves and were not edible by the cattle were identified as *Cyanthilliumcinereum*, *Amaranthusspinosus*, *Croton bonplandianus*, *Malachracapitata*, and *Sennaoccidentalis* in the region of study.

Keywords: Antimicrobial, Weeds, Chhattisgarh, Potential.

1. Introduction

In order to identify the main invasive weed species that threaten pasture and animal productivity in the lands, a study was carried out in central region of Bilaspur, Chhattisgarh.. Plants are a rich source of many bioactive chemical compounds, and they have frequently been used as either traditional remedies or as pure active ingredients. Unwanted and aggressive plants are considered weeds. Traditional healers used them to treat human illnesses since they were aware of its therapeutic potential. Many researchers have looked into the causes of weeds ability to fight microbial infections (Borkataky et al., 2013). Developing affordable products from weeds may be a technique of choice to manage weeds because they are cheap sources of material, which helps to lessen the disruption of weeds to more profitable crops. The weeds and wild plants that are typically despised for their annoyance potential are of particular importance. Investigating plant extracts as antimicrobial agents will be intriguing because weeds are more resilient to microbial attack than crops are (Jhakar et al., 2017).

2. Materials and Method

Study Area

The present study has been undertaken to investigate the obnoxious weeds of Bilaspur which is located in the eastern part of Chhattisgarh and fall within latitude 21'47" to 23'8" and longitude 81'14" to 83'15".

Collection and Identification

The fresh whole weed plants were collected from different places of Bilaspur, Chhattisgarh, India. The collected weeds were identified with the help of taxonomic key available in departmental library and confirmed with departmental herbaria. The plant samples were dried in shade then using a grinder, pulverised to a coarse powder. Paper bags were used to store the dried plant material (Singh et al., 2017).



Figure 1: *Cyanthilliumcinereum*



Figure 2: *Amaranthusspinosus*



Figure 3: *Croton bonplandianus*



Figure 5: *Senna occidentalis*



Figure 4: *Malachra capitata*

Table 1: Weeds selected from Bilaspur region with parallel work done in different study area

Fig. No.	Botanical Name	Local Name / English Name	Family	Parts used	Study area	References
1	<i>Cyanthillium cinereum</i>	Little Ironweed	<u>Asteraceae</u>	Flower, stem, roots	Coimbatore	Sujaet al., (2019)
2	<i>Amaranthus spinosus</i>	Spiny pigweed	Amaranthaceae	Leaves, stem, roots	Nigeria	Nasiret al., (2020)
3	<i>Croton bonplandianus</i>	Van Tulsi/ Croton	Euphorbiaceae	Leaves, stem, roots	West Bengal	Ghosh et al., (2018)
4	<i>Malachra capitata</i>	Mallow	<u>Malvaceae</u>	Leaves, stem, roots	Nagpur	Bhowal et al., (2015)
5	<i>Senna occidentalis</i>	Coffee senna/ styptic weed	<u>Fabaceae</u>	Leaves, Stem, roots	Brazil.	Lombardo et al., (2015)

3. Results and Discussion

In the present study it was observed that weeds are in abundance near the croplands and near the water resources. The weeds selected are *Cyanthillium cinereum*, *Amaranthus spinosus*, *Croton bonplandianus*, *Malachra capitata* and *Senna occidentalis*. A few species were found to be dominant over the area while many were found in very few numbers. Out of these, 5 unwanted obnoxious weeds have been undertaken from the Bilaspur region for investigation. They belong to Asteraceae, Euphorbiaceae, Amaranthaceae and Fabaceae and Malvaceae Family and they have maximum frequency

4. Conclusion

The data gathered from this study will facilitate the accurate identification of these weeds and explore its antimicrobial potential. Thus, the result of this study has the potential to utilise the useful side of the noxious weeds irrespective of their harmful and unwanted effects.

They will be tested against gram negative and gram positive bacteria such as *E. coli* and *Staphylococcus aureus* using the

plant extracts. The inhibition studies will be carried out to observe the influence of various phytochemicals such as tannin, glycoside, terpenoid etc which are bioactive in nature and direct the applicability towards targeted infections.

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