

# Phytochemical Investigation of Crude Methanol Extracts of Different Wild Vegetables from the Bhandara District of Maharashtra

S P Chute<sup>1</sup>, V Dakhane<sup>2</sup>

<sup>1</sup>Research scholar, Department of Botany, Dr. Ambedkar College, Chandrapur 442401

<sup>2</sup>Assistant Professor, Department of Botany, Dr. Ambedkar College, Chandrapur 442401

## Abstract:

**Background:** Wild vegetables are available in different seasons throughout the year in the Bhandara district. It has been used in traditional medicine to treat various diseases including diabetes, immunity booster, cancer, infertility, anemia, jaundice, etc. also used as food. It's good for humans because of the absence of synthetic chemicals like pesticides and fertilizers that are causing Endo-destructive.

Phytochemical screening of five (Bauhinia variegata, Capparis zeylanica, Chenopodium album, Discoria bulbifera and Oxalis imbricata). Only a few people know about it, especially those living near forest areas. Some use wild vegetables for animal fodder, and some throw away or burn wild vegetables as useless because unknown about the value of wild vegetables. However, comprehensive information on these wild vegetables is important. Therefore we aimed to provide comprehensive information on wild vegetables' ethnobotanical use, pharmacological activities and phytochemistry.

**Main body:** The study includes 10 wild vegetables in methanolic extracts. Very important phytochemicals i.e. bioactive compounds are present in wild vegetables which are used to treat various diseases.

**Conclusion:** the presence of the phytochemical wild vegetables makes them more important. Wild vegetables are used as medicines as well as food by local people in daily life. Wild vegetables are more nutritious for human health than cultivating vegetables containing chemicals.

**Keywords:** Bhandara District, Endo-destructive, Methanol Extracts, Phytochemical, Wild Vegetables,

## Introduction

Plants can produce a large number of diverse bioactive compounds. High concentrations of phytochemicals, which may protect against free radical damage, accumulate in fruits and vegetables [Sader, H. S., et al, 2004]. Plant foods used as vegetables are recommended constituents of the daily diet as they are essential sources of nourishment and if used as an integral vegetable to the starch and protein staple foods they become a more vital health ingredient to balance the diet with micronutrients. (Kwinana-Mandindi, 2015). Wild vegetables (WV) are an important source of food, mainly in the rural parts of South Africa (Modi, Modi, & Hendriks, 2006) (Vorster, Rensburg, & Venter,

2007). Natural products, such as plant extract, open a new horizon for the discovery of new therapeutic agents (Cosa, Vlietinck, Berghe, & Maes, 2006) The term phytochemical generally, is used to refer to chemical compounds that occur naturally in plants which are responsible for color and organoleptic properties (Michael, 2000).

## Materials and methods

### Plant sample collection

Fresh leaves of the green vegetables of the Bauhinia Varigata( Kolar bhaji), Chenopodium album L, (AwaliDhawali), Olax imbricate ( Aratfari), Fruit of Capparis Zylanica ( Varakli) and bulb of Discoriabulbifera all this plant collected during the different season in 2022 from various sites of Bhandara District in Maharashtra. All the plants were identified with the help of flora.

### Preparation of plant extract

The plant materials were dried at room temperature for 10 -15 days and then powdered using a grinder. A sample (10 g) of each powdered plant material was extracted in methanol (100 ml) for 1 hrs by reflux. At the end of the extraction, each extract was filtered using Whatman filter paper no-1. The filtrate was kept in the water bath for evaporating methanol from the extract at 45°C and stored in a desiccator for further use.

### Qualitative Phytochemical analysis

The extracts of the powdered leaves, fruit and bulb of wild vegetables were analyzed for the presence of various Phytochemical like saponins, alkaloids, Tannin, carbohydrates, flavonoids, phenol and Protein compounds by using standard phytochemical procedures such as those described by Harborne (Harbone, 1973).

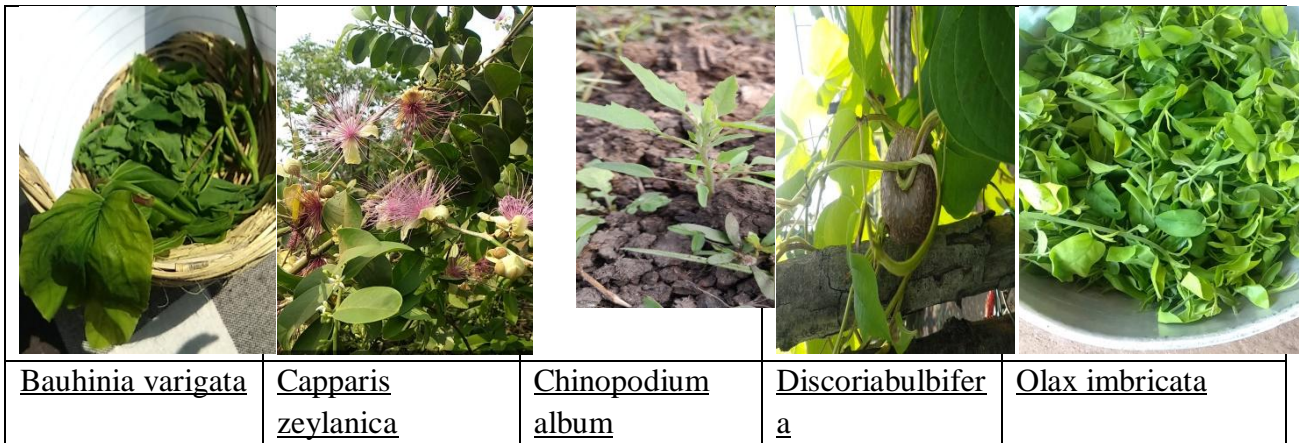
### Phytochemical screening:

**Tests for saponins: Foam test:** Small amount of extract is shaken with little quantity of water, and then foam is produced and persists for 10 min. It confirms the presence of saponins.

**Test for alkaloids: Wagner's test:** The acid layer when mixed with a few drops of Wagner's reagent (solution of iodide in potassium iodide) if it gives brown to red precipitate indicates the presence of alkaloids.

**Tests for flavonoids: Ferric chloride test:** Alcoholic solution of leaf extract react with freshly prepared FeCl<sub>3</sub> if it gives black fish green color indicates the presence of flavonoids.

**Tests for carbohydrates: Benedict's test:** If the extract is heating with Benedict's reagent if brown ppt is observed indicates the presence of sugar.



### Result and Discussion

The preliminary phytochemical screening I methanolic extract of wild vegetables

| Sr. no | Wild Vegetables           | Phytochemical |   |   |   |   |   |    | Part used | Traditional use                            |
|--------|---------------------------|---------------|---|---|---|---|---|----|-----------|--|
|        |                           | S             | T | A | F | P | C | Pr |           |  |
| 1.     | <i>Bauhinia variegata</i> | +             | + | + | + | + | + | +  | Leaves    | Snake poison                               |
| 2.     | <i>Capparis zeylanica</i> | +             | + | + | + | + | + | +  | Fruit     | Breast cancer<br>Uterus cancer<br>Diabetes |
| 3.     | <i>Chinopodium album</i>  | +             | - | + | + | + | + | +  | Leaves    | anemia                                     |
| 4.     | <i>Discoriabulbifera</i>  | +             | - | - | + | + | + | +  | Bulb      | Pile, diabetes, cancer                     |
| 5.     | <i>Olax imbricata</i>     | +             | - | - | + | + | + | +  | Leaves    | Remedy for diabetes                        |

### Conclusion and future prospects

The current study of selected wild vegetables that *Bauhinia variegata*, *Capparis zeylanica*, *Chenopodium album*, *Discoriabulbifera* and *Olax imbricata* could contribute to the treatment of various diseases like anemia, breast cancer, uterus cancer, diabetes, and infertility, it also uses as food. Qualitative phytochemical analysis has revealed that saponin, Flavonoid, Carbohydrate and protein were present in almost all the five plant species which was confirmed by methanol solvents. However, *Discoriabulbifera* and *Olax imbricata* show an absence of Tanin and alkaloid in methanol extract. However, the entire survey, including the phytochemical analysis proved that the nutritional status of the wild vegetables is good and is also appreciated by the local people of Bhandara district. In the Future, these plants may be cultivated as their demand in markets is quite possible because of their phyto constituent. These are highly nutritious and antioxidant-rich the species are common in most rural areas. The data of the study are expected to be equally beneficial to everyone.

### Acknowledgment

Special thanks to SARTHI research institute, Pune, Maharashtra for financial assistance. Many thanks to the Manoj and Sudame family for the help of various kinds during the collection of vegetables. Dr. Gurunani and Dr. Motghare Madam staff of the Pharmacognosy Department Priyadrshani College Nagpur were particularly instrumental in helping me to complete the study of phytochemical analysis. I would like to thank the Rajgond tribe people for their help in plant collection and identification. This is one of the chapters in my thesis.

### References

1. Cosa, P., Vlietinck, A., Berghe, D., & Maes, L. (2006). The anti-infective potential of natural products: How to develop a stronger in vitro proof-of-concept. *J Ethnopharmacol*, 290-306.
2. Harbone, J. (1973). *Phytochemical method*. London: Chapman and Hall Ltd.
3. Kwinana-Mandindi, T. (2015). Phytochemical and Antioxidant Composition of Selected Local Wild. *5th International Conference on Biomedical Engineering and Technology (ICBET)* (pp. 96-102). Singapur: IACSIT Press, .
4. Michael, D. (2000). New pharmaceutical, nutraceutical & industrial products: the potential for Australian agriculture. *Rural industries research and development corporation 2000*.
5. Modi, M., Modi, A., & Hendriks, S. (2006). A potential role for wild vegetables in household food security. *African Journal of Food Agriculture Nutrition and Development*, 1-7.
6. Sader, H. S., Goncalves, A. G., Reis, A. O., Gales, A. C., Varella, A. D., & Younes, R. N. (2004). Screening of antimicrobial extract from plants native to the Brazilian rainforest and Atlantic forest. *Braz J Med BIOL*, 379-384.
7. Vorster, I., Rensburg, j., & Venter, S. L. (2007). The importance of leafy vegetables in South Africa. *African Journal of Food and Agriculture Nutrition and Development*, 1-13.