



ISSN : 0973-7057

## Phytochemical screening on some leaves of weed plants

Shakibkhan S. Bihari\* & Jitendra S. Patel

Department of Botany, The HNSB Ltd Science College, Himatnagar, Gujarat, India

Received : 04<sup>th</sup> January, 2024 ; Revised : 06<sup>th</sup> February, 2024

DOI:-<https://doi.org/10.5281/zenodo.14062760>

**Abstract-** Qualitative phytochemical study serves as the first step in drug discovery. The present study is done on the leaves of 4 weeds *Boerhavia erecta* L., *Cassia tora* (L.) Roxb., *Euphorbia hirta* L. and *Leucas aspera* (Wild.) Spr. from Palanpur taluka, in this study phytochemical investigation was done in methanol extract and water extract. The weed plants are mostly considered as unwanted plants so this study gives an idea of which secondary metabolites are present in the leaves of *Boerhavia erecta* L., *Cassia tora* (L.) Roxb., *Euphorbia hirta* L. and *Leucas aspera* (Wild.) Spr.

**Key words:** Phytochemical screening, *Boerhavia erecta* L., *Cassia tora* (L.)Roxb., *Euphorbia hirta* L., *Leucas aspera* (Wild.) Spr., Palanpur

### INTRODUCTION

Approx total of 4, 22,000 flowering plants are reported from the world<sup>1</sup>, and 50,000 plants are used for medicinal purposes.<sup>2</sup>

Indian ancient literature observed that every plant on this planet is useful in medicine, industry and allelopathy.<sup>3</sup> In India, more than 43% of the total flowering plants are reported to be of medicinal importance<sup>4</sup>, in Indian scriptures, 67 medicinal plants are described in Rigveda, 81 in Yajurveda and 290 in Atharvaveda.<sup>5</sup>

Here a qualitative phytochemical analysis on leaves of 4 weeds including *Boerhavia erecta* L., *Cassia tora* (L.) Roxb., *Euphorbia hirta* L. and *Leucas aspera* (Wild.) Spr. has been done from the weed plants occurring in the villages of Palanpur taluka. Weeds are collected from different villages of Palanpur taluka, *Boerhavia erecta* L. and *Leucas aspera* (Wild.) Spr. are collected from

Hebatpur, *Euphorbia hirta* L. is collected from Delwada, *Cassia tora* (L.) Roxb. is collected from Takarwada.

A phytochemical survey to find out which phytochemical constituents are present in any plant to make medicine now serves as the first step towards the discovery of useful drugs. Weed plants are widely found in nature but weeds are considered unnecessary so most of the weeds are thrown away without being used in any way. Phytochemical research on the weed plants of Palanpur taluka has been lacking, and this study aims to address that gap.

### MATERIALS & METHODS

Various chemicals for phytochemical analysis, Water bath, Hot air oven, Test tube, Test tube stand, Test tube holder, Funnel, Whatman filter paper and selected weed plant's leaves.

The weed was collected from different villages of Palanpur taluka and its leaves were separated and first

\*Corresponding author :

Phone : 8128567646

E-mail : shakibkhan2373@gmail.com

cleaned with water and dried in oven at 55°Celsius temperature for 4 hours, then fine powder was made with the help of electrical blender.

**Methanolic extract**

- 5 g of powder was weighed and dissolved in 50 ml of 90% methanol using a glass rod and kept at room temperature for 48 h, during this time it was mixed periodically. Then it was filtered and placed in a water bath at 30°C to evaporate methanol, the crystals obtained after evaporation of methanol were dissolved in 1% HCL and filtered again and finally the filtrate was used for phytochemical test.

**Water extract**

- 2 g of powder was weighed and mixed with a glass rod in 30 ml of distilled water and heated for 5-6 minutes. It was then cooled to normal room temperature for 5-6 minutes.
- After which it was filtered with the help of Whatman filter paper. The filtrate was immediately used for phytochemical test.

**Qualitative phytochemical test:**

**Alkaloid:**

- 1 ml extract was treated with a few drops of Mayer’s reagent white yellowish precipitate produced which indicated the presence of alkaloids.<sup>6</sup>

**Saponin (Frothing test):**

- About 1 ml of extract was added to 2 ml of distilled water and shaken for few minutes in test tube if the layer of foam produced for 5 minutes indicates the presence of saponin.

**Tannin: (Ferric chloride test):**

- About 1 ml extract treated with 10% ferric chloride solution & observed brownish green or a blue-black coloration indicates the presence of tannin.

**Steroid: (Lieberman and Burchard test)**

- 2 ml of extract was dissolved in 5 ml of chloroform and add 1 ml acetic anhydrides then add 5 ml of concentrated H<sub>2</sub>SO<sub>4</sub> by the side of the test tube red colour indicates the presence of steroids.

**Flavones: (Alkaline test)**

- 2 to 3 drops of sodium hydroxide were added to 2 ml of extract yellow colour indicates the presence of flavones.

**Protein: (Xanthoprotic tests)**

- 1 ml of extract treated with concentrated HNO<sub>3</sub> yellow precipitate indicates the presence of protein.

**Reducing sugar: (Fehling test)**

- 1 ml extract treated with 2 ml Fehling solution and heat in water bath for few minutes if the brick-red precipitate observed it indicates the presence of reducing sugar.

Table 1- Phytochemical screening on weed plant leaves.

	<i>Boerhavia erecta</i> L.		<i>Cassia tora</i> (L.) Roxb.		<i>Euphorbia hirta</i> L.		<i>Leucas aspera</i> (Wild.) Spr.	
	Methanol Extract	Water extract	Methanol Extract	Water extract	Methanol extract	Water extract	Methanol extract	Water extract
Alkaloid	-	-	-	-	-	+	+	+
Saponin	+	+	+	+	+	+	+	+
Tannin	+	+	+	+	+	+	-	-
Flavones	+	+	+	+	+	+	+	+
Steroid	+	+	-	+	+	+	-	+
Protein	+	+	-	-	+	+	+	+
Reducing sugar	+	+	+	+	+	+	+	+

(+) Present (-) Absent



*Boerhavia erecta* L. Water extract



*Boerhavia erecta* L. Methanol extract



*Euphorbia hirta* L. Water extract



*Euphorbia hirta* L. Methanol extract



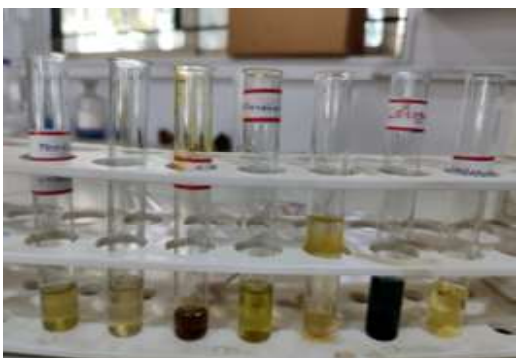
*Cassia tora* (L.) Roxb. Water extract



*Cassia tora* (L.) Roxb. Methanol extract



*Leucas aspera* (Wild.) Spr. Water extract



*Leucas aspera* (Wild.) Spr. Methanol extract

## RESULT & DISCUSSION

Results of the phytochemical analysis of four weeds are shown in Table no: 1 saponin, flavones and reducing sugar are present in all four weeds in both methanol and water extract. Protein is absent in *cassia tora* (L.) Roxb. alkaloid is present in *Euphorbia hirta* L. water extract and methanol and water extract of *Leucas aspera* (Wild.) Spr., tannin is only absent in *Leucas aspera* (Wild.)Spr., the steroid is absent in *Cassia tora* (L.)Roxb. and water extract of *Leucas aspera* (Wild.) Spr.

## REFERENCES

1. Govaerts R. 2001. How many species of seed plants are there?. *Taxon*, 50(4): 1085-1090.
2. Schippmann U., Leaman D. J., & Cunningham A. B. 2002. Impact of cultivation and gathering of medicinal plants on biodiversity: global trends and issues. *Biodiversity and the ecosystem approach in agriculture, forestry and fisheries*.
3. Sastry C. S. T. and Kavatheker K. Y. 1990. Plants for reclamation of wastelands. New Delhi, India

4. **Pushpangadan P. 1995.** Ethnobotany in India A Status Report All India Co-ordinated Research Project Ministry of Environment and Forests. *Government of India, New Delhi.*
5. **Sinha P. 2002.** Overview on diseases of medicinal plants and their management. *Recent Progress in Medicinal Plants—Diseases and their Management. Sci. Tech Publishing LLC, USA, 1-212.*
6. **Siddiqui A. A., Ali M. 1997.** Practical Pharmaceutical chemistry. 1st ed. New Delhi: CBS Publishers and Distributors.
9. **Prakash N. U., Jahnvi B., Abhinaya K., Rajalin A. G., Babu H. S., Kumar M. P., Reddy K. U., Reddy K. D., Sundaraman G., Elumalai K. and Devipriya S., 2011.** Phytochemical analysis of common weeds of Northern districts in Tamil Nadu. *Int. J. Appl. Biol.*, **2**:25-28.
10. **Dhole J. A., Dhole N. A., Lone K. D., & Bodke S. S. 2011.** Preliminary phytochemical analysis and antimicrobial activity of some weeds collected from Marathwada region. *Journal of research in Biology*, **1(1)**: 19-23.
11. **Saswade R. R. 2019.** Qualitatively preliminary phytochemical analysis of some different weed species. *International Journal of Research and Analytical Reviews*, **6(2)**: 704-706.
12. **Priya R., Nirmala M., Shankar T., & Malarvizhi A. 2018.** Phytochemical compounds of *Leucas aspera* L. *Pharmacological Benefits of Natural Products*. **1**: 19-35.
13. **Asha S. & Thirunavukkarasu P. 2015.** Phytochemical screening of *Euphorbia hirta* linn leaf extracts. *World Journal of pharmaceutical sciences*, 1104-1112.

#### ADDITIONAL REFERENCES

7. **Krishnaiah D., Sarbatly R., & Bono A. 2007.** Phytochemical antioxidants for health and medicine: A move towards nature. *Biotechnol Mol Biol Rev.* **1(4)**: 97-104.
8. **Borkataky M., Bhusan B., & Saikia L. 2013.** Antimicrobial activity and phytochemical screening of some common weeds of Asteraceae family. *Int J Pharm Sci Rev Res*, **23(1)**: 116-120.

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