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Research Article

PHARMACOGNOSTIC STUDIES OF BARLERIA PRIONITIS L

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ABSTRACT

Barleria prionitis L. (Acanthaceae) is a pricky shrub commonly known as 'Pivali koranti' native to India and Sri Lanka. It is used for various medicinal purposes in ayurvedic smedicine. This plant is used for treatment of toothache, strengthening of gums and whooping cough. The juice of the leaf is used in cataract and fever. Locally in Anjangaon region Dist. Amravati the dried bark is used in cough treatment and leaves chewed to relieve toothache. The paste of root is applied to disperse boils and glandular swellings. Anatomically leaf is characterized by anomocytic stomata, dorsiventral mesophyll and epidermis covered by glandular trichomes, In present investigation 15 bioactive compounds were tested in the fresh as well as dry plant powder and showed the presence of alkaloids, flavanonol, flavones,, flavonone, polyoses and flavonoides. Leaves were extracted with petroleum ether, Acetone, methanol. Chloroform and distilled water. TLC fingerprinting of all extract was done for drug characterization. Fluorescence analysis was done and shows distinct behavior with different chemicals,

INTRODUCTION

Barleria prionitis L. (Acanthaceae) is a pricky shrub commonly known as 'Pivali koranti' native to India and Sri Lanka . It is used for various medicinal purposes in ayurvedic medicine. The plant is used for the treatment of toothache, strengthening of gums, whooping cough (A.S. Yadav, *et al.* 2011). The juice of the leaf is used in cataract and fever. The extract of plant rich in iridoid glycosides is a potent hepatoprotective agent, (Singh B. *et al.* 2005). and useful in respiratory infections whooping cough, and tuberculosis (Chen JL, *et al.* 1998). Locally in Anjangaon region Dist. Amravati the dried bark is used in cough treatment and leaves chewed to relieve toothache. The paste of root is applied to disperse boils and glandular swellings. Due to traditional use of *Barleria prionitis* L. for the several diseases, in the present investigation these plant parts selected for pharmacognostic study.

MATERIAL AND METHOD

Plants were collected from area around the Anjangaon Surji region Dist. Amravati; for identification standard floras were reffered (Dhore 2002, S.Y.Kable and S.G.Pradhan 1998, Yadav S.R. and Sardesai M.M. 2002). For anatomical studies hand sections of fresh material were taken and photography was done to illustrate micromorphology of leaf. Anatomy of plant part used i.e. leaf was studied. Mature leaves were shade dried, powered and stored at 4 ^{0}C in zip lock bag for further studies. Material was screened for presence of bioactive molecules following standard methods. (Evans 1997, Gibbs 1974, Herborne 1973). Leaves were extracted with five different solvent viz Petroleum ether, acetone, methanol, ethanol and distilled water. Extract were run in Chloroform: Benzene (4:1) phase for TLC fingerprinting for drug characterization. Fluorescence analysis of leaf powder was also done as per method described by Pratt and Chase 1949.

RESULT AND DISCUSSION

Morphology

Stem, erect much branched bushes 1-1.5 m tall, woody, slightly angular, solid, green. Leaves elliptic-lanceolate, 5x15x2.6 cm entire, opposite decussate, upper leaves show short petiole and lower leaves show long petiole, interpetiolar spines glabrescent. Inflorescence terminal spike flower in axillary clusters. Flower yellow, outer calyx spine tipped. Corolla pubescent outside, bract foliaceous oblong lanceolate, acute and bristle-tripped, Stamen 4, two stamens large, two stamens small epipetalous, anther dorsifixed. Ovary superior, bilocular, bicarpellary, axile placentation, capsule avoid with break, seeds hairy flattened, orbicular.(Plate-I)

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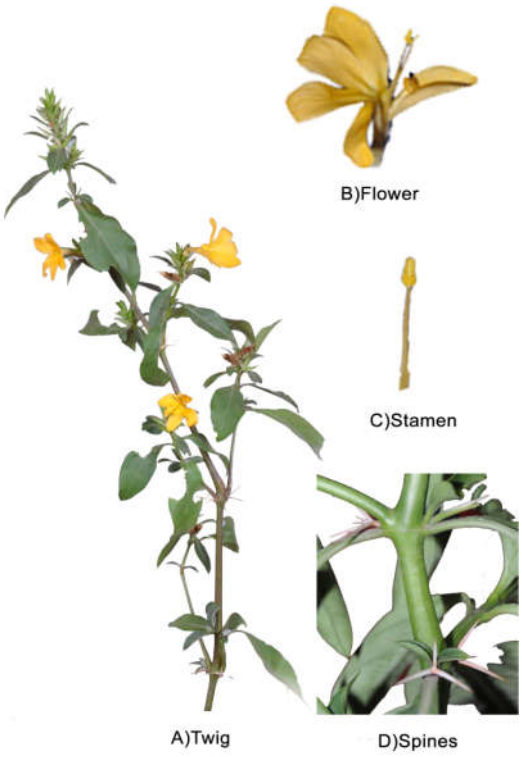

Plate I

Anatomy

Leaf: Petiole-Epidermis single layer covered by cuticle. Glandular trichomes present on epidermis. 5 to 6 layers of

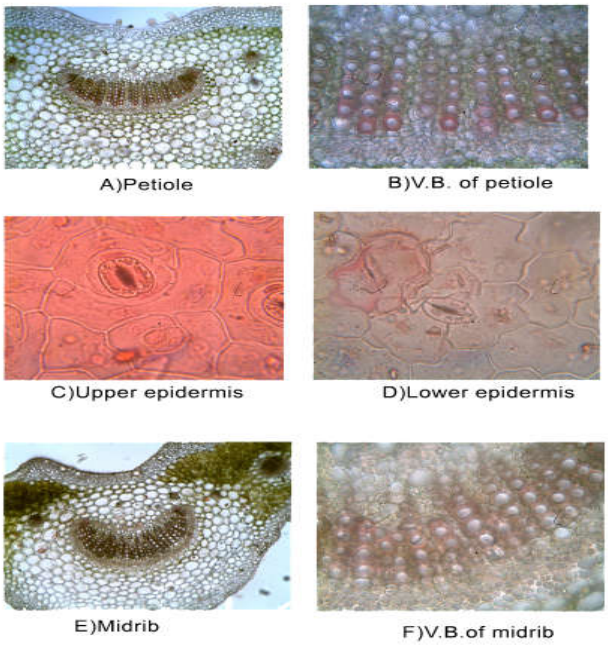

Plate II

Phytochemical Profile - **Table No 1**

Sr. No.	Test	Response	Intensity	Inference
1	Iridoids	Dark green	--	Absent
2	Alkaloids			
	a) Mayer's Reagent	Yellow	--	Absent
	b) Wagner's Reagent	Brown	++	Presnt
3	Anthraquinones			
	a) Test a	Greenish	--	Absent
	b) Test b	Light Yellow	--	Absent
	c) Test c	Brown	--	Absent
4	Cardenolides			
	a) Cardiac glycosides	Light Green	--	Absent
	b) 2-deoxy sugar	Brown	--	Absent
5	Flavonoids			
	a) Shinoda test			
	b) Flavononol test	Crimson	--	Absent
	c) Flavanol test	Yellowish	++	Present
	d) Flavone, Flavonol, Flavanone test	Yellowish	---	Absent
	e) Rao & sheshandri test	Orange	+++	Present
		Light Yellow	--	Absent
6	Simple Phenolics			
	Test a) with $Fecl_3$	Green	++	Hydroquinone/n-naphthonol/catechol
	Test b) with addition of NaOH	Reddish	++	B-diketones or B-ketonic ester Hydroquinone
	Test c) Addition of excess $Fecl_3$	Yellow	++	
7	Leucoanthocyanin			
	Test a	Green	--	Absent
	Test b	Dark Green	--	Absent
8	Steroids	Light Brown	--	Absent
9	Tannin			
	Test a	Light Green	--	Absent
	Test b	Dark Green	--	Absent
10	Saponins	No Froth	--	Absent
11	Juglone	Light Yellow	--	Absent
12	Emodins	Light Green	--	Absent
13	Polyoses	Red	++	Present
14	Polyuronoides	Brown	--	Absent
15	Anthracene glycosides	Green	--	Absent

TLC fingerprinting of extracts in mobile phase- Chloroform: Benzene (4:1) **Table 2**

Name of extract	Developers	Number of spot	Rf value	Colour
Petroleum ether	H2SO4	02	0.28	Brown
			0.82	Blue
	Iodine	04	0.19	Light green
			0.30	Light yellow
			0.58	Light yellow
			0.64	Light brown
Methanol	H2SO4	03	0.28	Green
			0.37	Brown
			0.603	Brown
	Iodine	03	0.16	Light green
			0.46	Light yellow
			0.66	Light brown
Ethanol	H2SO4	03	0.92	Brown
			0.58	Light brown
			0.53	Light green
	Iodine	02	0.30	Light green
			0.51	Light green
Acetone	H2SO4	02	0.26	Green
			0.98	Light yellow
	Iodine	02	0.24	Green
			0.42	Light green
			0.97	Light yellow
Water	H2SO4	Nil	-	-
	Iodine	Nil	-	-

collenchymatous cells are present below upper epidermis. collenchymatous cells are followed by chlorenchymatous cells. polygonal parenchymatous cells in the center it shows collateral type of vascular bundle. **Lamina-**Epidermis single layer covered by glandular trichomes, upper and lower epidermis shows anomocytic stomata. Mesophyll differentiated into palisade and spongy parenchyma. Palisade single layer, elongated and compactly arranged. Spongy parenchyma irregularly arranged. Stomata numerous on lower epidermis as well as upper epidermis. **Midrib-**Epidermis single layer covered by cuticle. Five to seven layer collenchymatous cell are present below the epidermis. Parenchyma with intercellular space, parenchymatous cells are present below the collenchymatous cells. Vascular bundle situated centrally, xylem vessels arranged in radial row, collaterally arranged vascular bundle. (Plate-II Fig- A to F)

Phytochemistry

In present investigation plant material was screened for 15 biomolecules of these six were found to be present in the material studied and showed the presence of alkaloids, flavanonol, flavones, flavonol, flavanone, polyoses in leaf (Table1). TLC finger printing-Plant extracted in petroleum ether, chloroform, acetone, methanol, and water were subjected to TLC finger printing for characterization (Table 3). Fluroscence analysis -The fluroscence characteristics of powder when treated with various chemical reagent have been extensively studied in day light which sets a standard parameter for authentication the results are shown in table 2. Leaf powder fluorescence analysis shows distinct behavior with different chemicals.

Fluorescence analysis **Table 3**

Sr. No.	Treatment	Observation (Colour)
1	Powder+Acetic acid	Green
2	Powder+conc. H_2SO_4	Blakish Brown
3	Powder+ conc. HNO_3	Brown
4	Powder+ $FeCl_3$	Brown
5	Powder+ Aq.NaOH	Yellowish Green
6	Powder+ conc.HCl	Dark Green

CONCLUSION

It is thus concluded that *Barleria prionitis* can be exploited for preparation of drug.

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