Pharmacognostical Evaluation of Some Traditionally Important Medicinal Plants of Chunar Region of Uttar Pradesh

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Abstract

Herbs play a significant role, especially on modern time, when alarming effects and over-medication have assumed alarming properties. The growing interest in herb is a part of the movement towards change in life styles. The movement is based on the belief that the plants have potential for their uses as curative medicine. In the present investigation three plants were selected from Chunar region of Uttar Pradesh. In this study Pharmacognostical evaluation of *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, *Leucas cephalotes* Roxb. (Gumma) Flowers and *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were investigated and reported.

Introduction

Tribal and rural communities use a number of plants for the treatment of various human ailments. It is evident that many valuable herbal drugs have been discovered by knowing that a

particular plant was used by the ancient folk healers for the treatment of some kind of ailments. Moreover, the medicinal plant wealth are our national heritage and it seems to be the first and foremost line of defence for the treatment of various diseases mostly tribal and rural communities and is a worth scientific study. India is endowed with a wealth of medicinal plants. It has a valuable heritage of herbal remedies like most developing countries. The tribal and rural population of India still relies on indigenous system of medicine to a great extent. Moreover, India exports large quantities of crude plants to the international market at very cheap prices due to lack of value addition in these products. One process that is upmost necessary for the addition of economic profit to these currently almost worthless but abundant product of India is to screen these plants for the various biological and pharmacological activities. A sincere step is need to establish the standardization parameters of these medicinal plants to set their in-order to prove the safety, efficacy and genuity of these herbs so that manufacturers can utilize them for identification and selection of the raw material for drug production. [1-3] The present work carries the results of pharmacogostical studies of some traditionally important medicinal plants of Chunar region of Uttar pradesh. It indicates the quality standards and utilization of selected plants for the treatment of various ailments among the inhabitants as mentioned in folk-lore and to validated scientifically.

Material and Methods
Selection and Collection of Plant Material
Three plants i.e., *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, *Leucas cephalotes* Roxb. (Gumma) Flowers and *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were selected from Chunar region of Uttar Pradesh, for the present study.

Authentication of Plant/Plant Material
The plant parts viz., BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were collected from local sites of Chunar region of Uttar Pradesh, India and identified morphologically, microscopically and compared with standard pharmacopoeial monograph. The sample of drug was also identified & authenticated by Dr. S. N. Dwivedi, Retd. Prof. and Head, Department of Botany, Janta PG College, A.P.S. University, Rewa, (M.P.)

Macroscopic studies [4-6]

The macroscopy of different parts of the plant viz., BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers such as color, odor, size, shape, taste, surface characters and fractures were carried out. The results were presented in table.

Physicochemical evaluation[7-10]

The dried plant parts of BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were subjected to standard procedure for the determination of various physicochemical parameters. The dried parts were subjected to standard procedure for the determination of various physicochemical parameters.

Successive extraction of selected herbs [11-12]

Sample were shattered and screened with 40 mesh. The shade dried coarsely powdered plant martertial (250 gms) were loaded in Soxhlet apparatus and was extracted with petroleum ether (60-62°C), Chloroform, ethanol and water until the extraction was completed. After completion of extraction, the solvent was removed by distillation. The extracts were dried using rotator evaporator. The residue was then stored in dessicator and percentage yield were determined.

Preliminary phytochemical screening of extracts [13-15]

The various extracts obtained after extraction were subjected for phytochemical screening to determine the presence of various phytochemical present in the extracts. The standard procedures were adopted to perform the study.

Results and Discussion

The macroscopy of different parts of the plant viz., BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers such as color, odor, size, shape, taste, surface characters and fractures were carried out. The results were presented in table 1. The dried plant parts of BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb.

(Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were subjected to standard procedure for the determination of various physicochemical parameters. The results were presented in table 2. The shade dried coarsely powdered plant material of BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were extracted with Petroleum ether, Chloroform, Ethanol and Water. The extracts obtained were evaluated for pH, color and % yield. The results are presented in table 3. The shade dried coarsely powdered plant material of BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were extracted with Petroleum ether, Chloroform, Ethanol and Water. The extracts obtained were evaluated for pH, color and % yield. The results are presented in table 3.

Table 1: Morphological Characters of Selected Plant Material

S/No.	Parameters	BLF	LCF	PBF
1.	Color	Yellow	White	Purple
2.	Odor	Characteristics	Sweet	Characteristics
3.	Taste	Sweet	Sweet	Bitter
4.	Shape	Irregular & Curved	Oval	Oval
5.	Size	Variable	L=1.5-3.5 cm; B: 0.5-2.0 cm	L=0.5 – 1.5; B0.5-1.5 cm
6.	Surface character	Smooth	Smooth	Smooth
7.	Fractures	Absent	Absent	Absent

Abbr.: BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers

Fig. 1: *Blumea lacera* **(Burm.f.) DC.(Nirmuli) Flowers**

**Fig. 2:** *Leucas cephalotes* **Roxb. (Gumma) Flowers**

Fig. 3: *Peristrophe bicalyculata* **(L) Merr. (Chotiharjori) Flowers**

Table 2: Physicochemical Evaluation of Selected Plant Material

S/No.	Parameters	BLF	LCF	PBF
1.	FOM	2.19±0.12	2.01±0.18	1.92±0.03
2.	LOD	3.01±0.05	3.12±0.07	4.02±0.10
3.	TA	10.98±0.05	8.23±0.03	10.17±0.02
4.	AIS	2.03±0.01	2.09±0.02	1.12±0.30
5.	WSA	4.34±0.11	3.79±0.12	3.31±0.16
6.	SI	3.03±0.10	3.03±0.11	3.81±0.19
7.	WSEV	16.24±1.03	14.11±1.09	13.39±0.03
8	ESEV	7.37±1.27	8.03±1.07	9.10±1.03

Note: All values are expressed as Mean±SEM, n=3

Abbr.: BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers; LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers; PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers
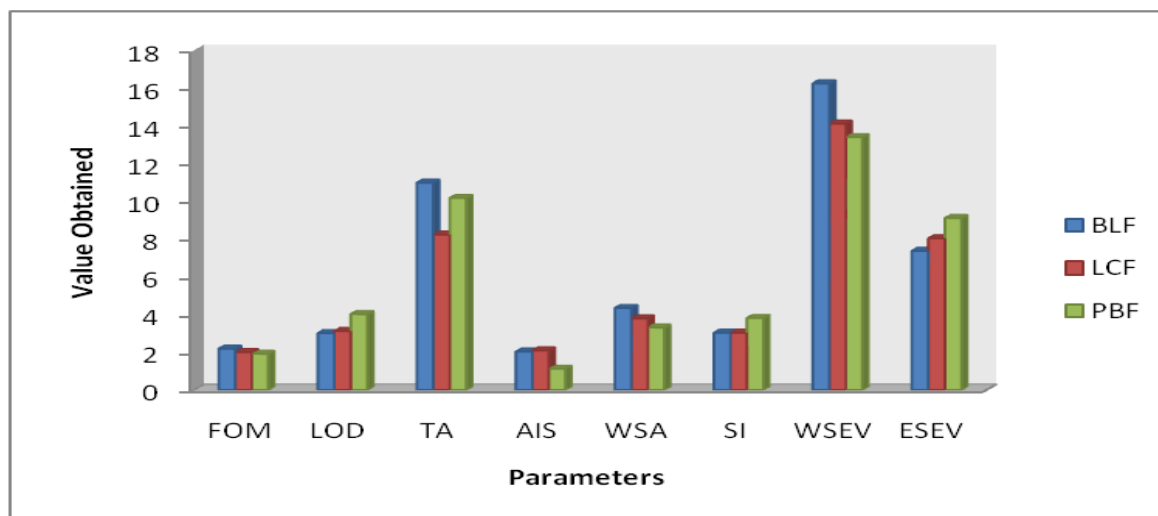
**Graph 1: Physicochemical Evaluation of Selected Plant Material**

Table 3: Estimation of % Yield of Various Extract of Selected Plant Material

S/No.	Extract	Parameters			
		Nature of Extract	Color	pH	% Yield
1.	PPEBLF	Semi solid	Greenish	6.98	0.91
2.	CEBLF	Sticky solid	Off white	6.63	1.10
3.	EEBLF	Semi solid	Yellow	7.1	8.38
4.	AEBLF	Solid powder	Dark Yellowish	7.2	14.56
5.	PEELCF	Sticky solid	Off White	6.98	0.63
6.	CELCF	Semi solid	Off White	6.99	1.23
7.	EELCF	Solid powder	Pale white	7.0	7.39
8.	AELCF	Solid powder	Dirty white	6.9	11.72

9.	PEEPBF	Sticky solid	Dark blue	6.8	0.51
10.	CEPBF	Semi solid	Blackish blue	7.3	0.98
11.	EEPBF	Solid powder	Light violet	6.9	6.19
12.	AEPBF	Solid powder	Dark violet	7.1	10.32

Abbr.: PEE= Petroleum ether extract; CE=Chloroform extract; EE= Ethanolic extract; AE=Aqueous extract

BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers; LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers; PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers
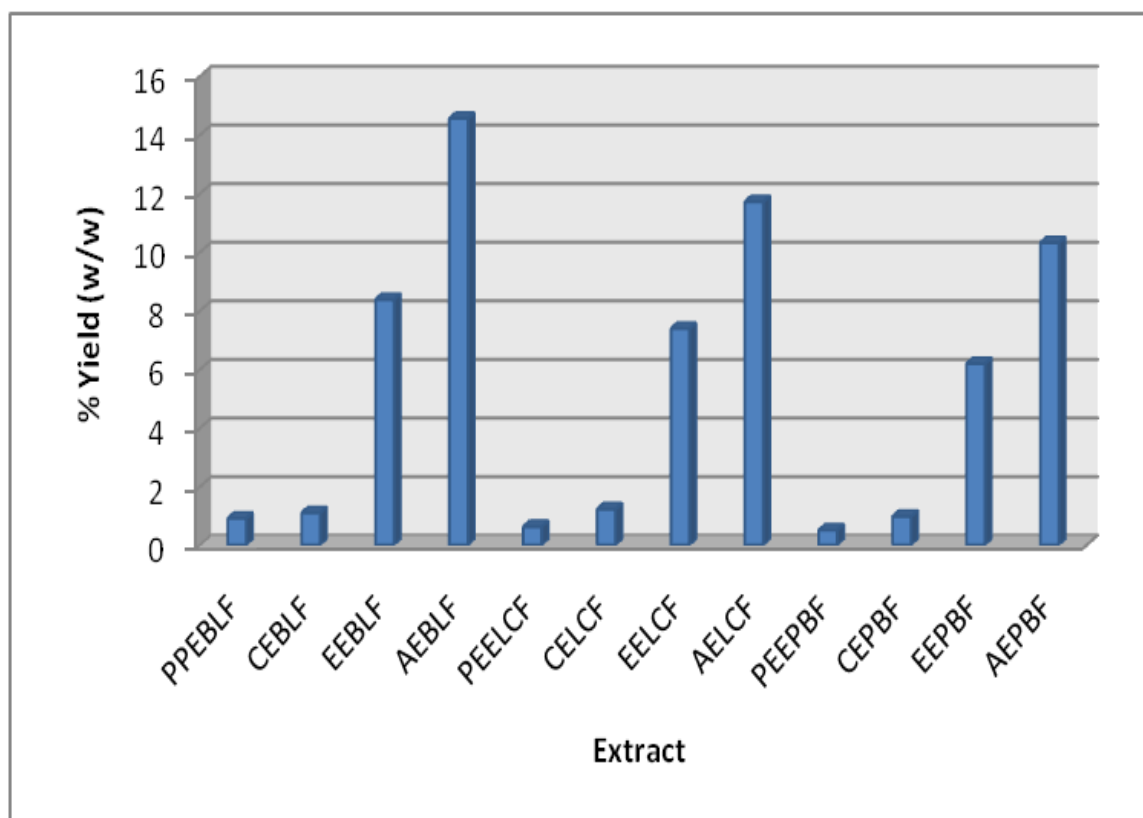
Graph 2: % Extract Yield of Selected Plant Material

Table 4: Preliminary Phytochemical Screening of *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers

S/No.	Constituents	Flower Extract			
		PEE	CE	EE	AE
1.	Carbohydrates	+	+	+	+
2.	Glycosides	-	-	-	-
3.	Alkaloids	-	-	+	+
4.	Protein & Amino acid	-	-	+	+
5.	Tannins & Phenolic compounds	-	-	-	-
6.	Flavonoids	-	-	+	+
7.	Fixed oil and Fats	-	-	+	+
8.	Steriods & Triterpenoids	+	+	+	+
9.	Waxes	-	-	-	-
10.	Mucilage & Gums	-	-	-	-

+ = Present; - = Absent

Table 6: Preliminary Phytochemical Screening of *Leucas cephalotes* Roxb. (Gumma) Flowers

S/No.	Constituents	Flower Extract			
		PEE	CE	EE	AE
1.	Carbohydrates	+	+	+	+
2.	Glycosides	-	-	-	-
3.	Alkaloids	-	-	-	+
4.	Protein & Amino acid	-	-	+	+
5.	Tannins & Phenolic compounds	-	-	-	-
6.	Flavonoids	-	+	+	+
7.	Fixed oil and Fats	-	-	+	+
8.	Steriods & Triterpenoids	-	+	+	+

| 9. | Waxes | - | - | - | - |
| 10. | Mucilage & Gums | - | - | - | - |

+ = Present; - = Absent

Table 7: Preliminary Phytochemical Screening of *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers

S/No.	Constituents	Flower Extract			
		PEE	CE	EE	AE
1.	Carbohydrates	-	-	+	+
2.	Glycosides	-	-	-	-
3.	Alkaloids	-	-	-	+
4.	Protein & Amino acid	-	-	+	+
5.	Tannins & Phenolic compounds	-	-	-	-
6.	Flavonoids	-	+	+	+
7.	Fixed oil and Fats	-	-	+	+
8.	Steriods & Triterpenoids	+	+	+	+
9.	Waxes	-	-	-	-
10.	Mucilage & Gums	-	-	-	-

+ = Present; - = Absent

Conclusion

The macroscopy of different parts of the plant viz., BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers such as color, odor, size, shape, taste, surface characters and fractures were carried out and reported.The dried plant parts of BLF= *Blumea lacera* (Burm.f.) DC. (Nirmuli) Flowers, LCF= *Leucas cephalotes* Roxb. (Gumma) Flowers and PBF= *Peristrophe bicalyculata* (L) Merr. (Chotiharjori) Flowers were subjected to standard procedure for the determination of various physicochemical parameters. In this study FOM, LOD, TA, SI and EV were determined.Successive extraction was performed and extracts obtained were evaluated for pH, color and % yield. EE and AE have more % yield than PEE and

CE. Phytochemical screening revealed the present of active phytoconstituents. EE and AE have more active constituents than PEE and CE.

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