

**PHARMACOGNOSTICAL, AND, PHARMACOLOGICAL,  
EVALUATION, OF, THE, LEAF, OF EUPHORBIA MILII****Satya Pal Singh Verma\***

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Article Received on  
04 March 2022,Revised on 25 March 2022,  
Accepted on 15 April 2022

DOI: 10.20959/wjpps20225-21782

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**ABSTRACT**

*Euphorbia milii* belonging family of Euphorbiaceae is Commonly known as the Crown of thorns. It is a medium-sized deciduous plant found throughout India. The evaluation was carried out in terms of the pharmacognostic of the leaves of *Euphorbia milii* which are useful in laying down standardization parameters. The microscopic studies of transverse the section were performed by double staining method and powder characteristics of leaves were also performed. Physicochemical studies include loss on drying, total ash, acid insoluble ash water-soluble ash, alcohol soluble extractive value, etc water-soluble

extractive value, etc. Phytochemical screening of different solvent extracts and thin layer chromatography was also performed.

**INTRODUCTION**

*Euphorbia milii*, native to Madagascar, is a class of flowering shrub belonging the to spurge family Euphorbiaceae The plant is an upright branched shrub with cylinder-shaped or indistinctly angled branches lined with rigid, thin, diversified spines. Leaves, pale green are have size up to 5 cm long, are limited in numbers, alternative, oblong obviate, or shortly acuminate. The flowers, variably red, pink, or white having sizes up to 12 mm broad, are small, subtended by a pair of conspicuous petal-like bracts. Inflorescences arise from the upper leaf axils and are peduncle with involucre, each involving two spreading red kidney-shaped lobes. *Euphorbia milii* is widely used as a medicinal plant. The various biological activities have been thoroughly reviewed. The various extract of the plant and its parts have been found to possess antimicrobial, molluscicide, antitumor, and antioxidant activity *Euphorbia* is named after Euphorbia, a Greek surgeon. He was the physician of Juba II, the Romanized ruler of a North African kingdom, and is said to have infused his remedies with

their milii. Medicinal plants are critical in human and medication development because they include a variety of compounds such as alkaloids, phenolic acids, flavonoids, and tannins. Euphorbiaceae contains medicinal properties including inflamed glands, worms, cough, eye and breast pain, enlarged spleen, jaundice, bladder stone, and tumors Although Euphorbia milii is tolerant of poor soils, especially rocky-sandy soils, and even of drought, regular applications of moderate hydration may result in improved bloom with less leaf drop. It performs best in locations with adequate air movement. Euphorbia milii is a succulent plant much esteemed for its brilliant flower-like inflorescences. However, it is a slow-growing limited branching plant. These insufficiencies affect its use in different aspects of landscaping as a bed, pot, or hedge plant and even for indoor decoration (Sandeep et. al., 2009). Euphorbia milii, red flowers presence of triterpenoids like taraxerol and -hydroxyfriedelan-1,3-dione-29- oic acid, flavone (quercetin-3-O-(2"-O-galloyl)- $\alpha$  L-arabinofuranoside) and phenolic compounds like - dihydroxy-8,6'-coumarin and 9-acetyl 4'-dimethoxydehydroconifery. Alternatively, they are dyes or pigments isolated from various sources, including plants, flower petals, fungi, and algae. For the first time in the year 1964, Sir Robert Boyle reported the use of natural dyes as acid-base indicators in his collection of essays Experimental History of Synthetic indicators are very costly and many of them cause environmental pollution and have toxic effects. Therefore, there has been an urgent need to identify alternative sources of indicators from natural origins. Plant pigments in general are highly colored substances known as flavonoids. These include flavone, flavonol, isoflavones, anthocyanin, anthocyanidin, etc Flavonoids together with anthocyanins confer a wide spectrum of color to flowers and fruits. The extraction of anthocyanin from red cabbage leaves to form an acid-base indicator is a popular chemistry experiment. Other than these few reported cases, it seems that no work has been done on the suitability of methanolic floral extract of Euphorbia milii as an indicator in acid-base titration. Therefore, the rationale of this undertaken work was to Assistant professor.

## MATERIALS AND METHODS

### Chemicals

Organic solvents. Ethyl acetate. Acetic acid: Formic acid. Ethanolic n-hexane. Alcohol. Acetone and water. Chloroform. Dimethyl Sulphoxide was obtained from Bareilly.

### **Preparation of leaf Extract**

The *Euphorbia milii* plant is a cultivation collection from MR. Tej Pal Verma village Rohtapur post-Anurudhpur Aonla Bareilly U.P. INDIA And authenticated by plant specimen is Arti Garg, Scientist-E (Ref. No. BSI/2020-21/405) And Date 26/02/2021 and accession no. 105182 by Botanical Survey of India. Allahabad. U.P. And the leaves are dried from the room without sunlight and dried at room temperature grinder using in powder. The drug powder was extracted with Ethanol and chloroform Methanol water etc. oll extract evaporated using an evaporator the resulted drug extract was preserved in tightly packed containers for future analysis.,

## **RESULT AND DISCUSSION**

### **Pharmacognostical Evaluation**

In this evaluation, a macroscopical, microscopical evaluation was done. Various quantitative parameters such as total ash, acid insoluble ash, water-soluble ash, extractive value with various solvents were done. In the preliminary phytochemical analysis, various chemical tests were performed for the determination of phytoconstituents present in the leaves of *Euphorbia milii*. TLC was performed for the ethanolic extract taking the solvent system with various ratios.

### **Macroscopy Evaluation**

The Leaves are green in color on the dorsal surface and light green color on the ventral surface. Leaves size is 12-15 cm long and width 4-5 cm. The shape is Oblong rectangular. The Odour is odorless and the taste is bitter.

### **Microscopy Evaluation**

The transverse section of a leaf of *Euphorbia milii* were diagnostic characters shown with the help of a compound microscope. The unicellular trichomes were found on both surfaces of the leaf i.e. upper epidermis and lower epidermis with outer layer cuticle. Anomocytic types of stomata were present in the upper and lower epidermis. The collenchymatous layer is followed by a ring of pericyclic fibers of five to seven layers wide compactly arranged lignified fibers. Vascular bundles were arranged in a ring composed of xylem and phloem.

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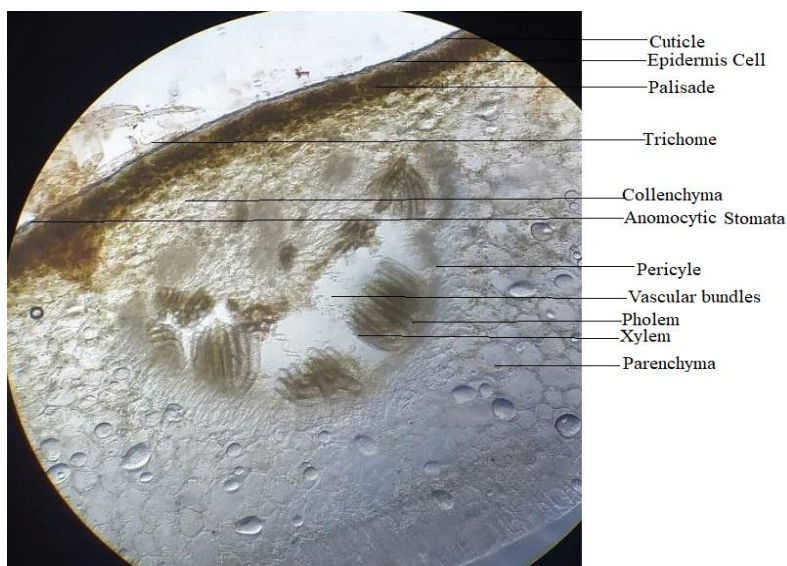
**Fig.:** *Euphorbia milii* with its parts.

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**Fig.: T.S. of Leaf of *Euphorbia Milli* at 100X.**

### **Powder Microscopy Evaluation**

In powder, microscopy has been performed and some lignified and some non lignified fibers present few starch grains, calcium oxalate crystal, and xylem vessels are pitted.

### **Loss of Drying (LOD)**

It was determined as per the standard method Khandelwal, 2011.

### **Table Loss on Drying of the leaves of *Euphorbia milii*.**

Sr. No.	Parameters	Values (w/w)
1	Loss on Drying	5.75 %

**Discussion of Loss on Drying:** Loss on Drying was used to determine the quality and purity of Crud drugs. The presence or absence of foreign Organic Matter such as Metallic Salts or Silica.

### **Ash Value**

Total ash, Acid insoluble ash, and water-soluble ash values were performed per Indian Pharmacopoeia 2007 and WHO, 1998. The results of the ash value of leaves of *Euphorbia milii* were given in Table.

### **Table: Ash values of the leaves of *Euphorbia milii*.**

Sr. No.	Parameters	Values (w/w)
1	Total ash	12.25
2	Acid-insoluble ash	8.75
3	Water-soluble ash	6.65

### Extractive Value

Water-soluble extractive value and Alcohol soluble extractive value were determined as per the official method Indian Pharmacopoeia 2007 and WHO, 1998.

**Table Extractive value of the leaves of *Euphorbia milii*.**

Sr. No.	Solvent	Values (w/w)
1	Water-soluble extraction	10.20%
2	Alcohol soluble extraction	8.42 %

### Successive Extraction

The fresh leaves coarse powder (100 gm) of *Euphorbia milii* were taken, then cut into pieces, shade dried, and coarsely powder. The coarse powder was successively extracted with different solvents increasing polarity of different solvents Pet. ether and Ethanol to yield different extracts by using the Soxhlet apparatus.



**Table Successive Extraction with Different Solvents of the Leaves of *Euphorbia milii*.**

S. No.	Solvents	Results of Successive Extraction (Leaves) Yield (%w/w)
1.	Pet. ether	4.37
2.	Ethanol	6.05

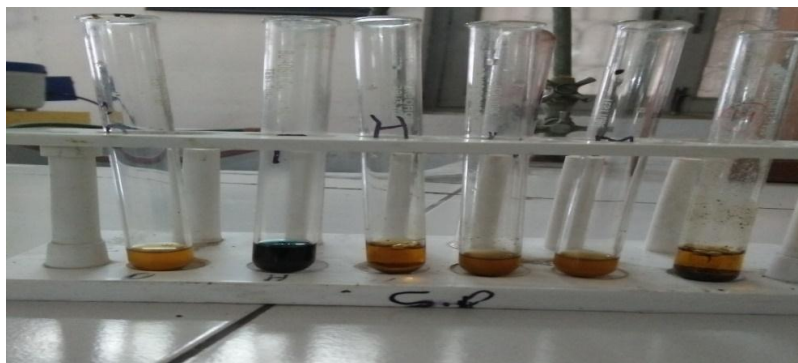
### Phytochemical Screening

The determination of phytochemical constituents was found in the various extracts by using qualitative chemical tests, were subjected to various chemical tests for phytoconstituents in the presence or absence of various extracts as results shown in the table.

**Table: Phytochemical screening of different extracts of leaves of *Euphorbia milii*.**

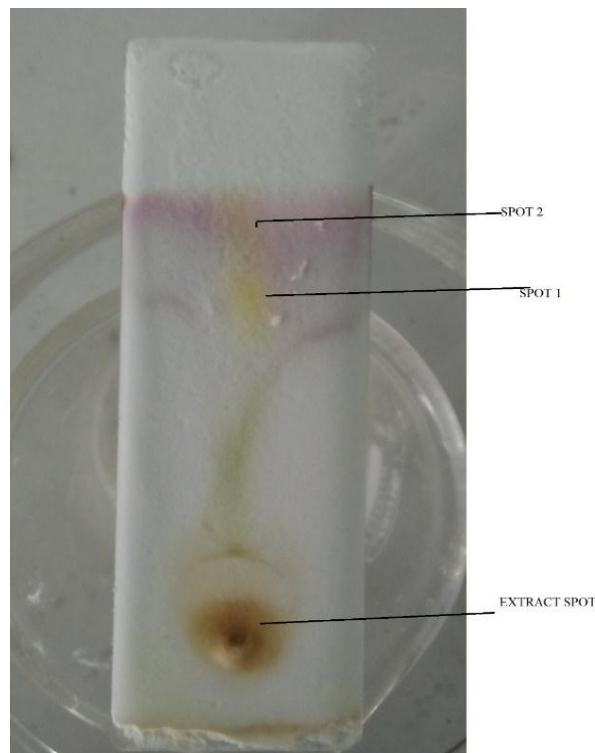
Sr. No	Name of Test	Petroleum Ether Extract	Alcoholic Extract
1	Test for flavonoids	+	+
2	Test for Saponins	-	+
4	Test for Glycoside	-	+
5	Test for Steroid	-	+
6	Test for Amino-acid	-	-
7	Test for Carbohydrate	+	+
8	Test for Proteins	-	-
9	Test for Tannins	-	+
10	Test for Fat	+	-

(+) Present, (-) Absent:



**Fig: Phytochemical Screening of leaves of *Euphorbia milii*.**

### Thin Layer Chromatography



**Fig: TLC of ethanolic extract of leaves of *Euphorbia milii*.**

**Table Thin layer Chromatography**

Mobile Phase	Extract	Rf value
n-Hexane: Ethyl acetate Acetic acid: Formic acid (5.5:4.5:5)		0.17
	Ethanolic	0.35
		0.45

**Pharmacological Evaluation****Acute Oral Toxicity**

Acute oral toxicity Is the adverse effect occurring within a short time of oral administration of a single dose of a substance or multiple doses given within 24 hours. The highest attainable dose 2000 mg/kg will be used as per as organization for economic cooperation and development (OECD) guideline 423. three rats, each sequentially dosed at intervals of 48 hours, which was observed no changes and no mortality.

**CONCLUSION**

This result justifies the use of the plant in traditional medicine for the treatment of various kinds of infectious diseases. And more studies can be concluded that Euphorbia milii this plant are microscopy and TLC, Acute oral toxicity more study of this plant.

**ACKNOWLEDGMENT**

First of all, I want to express my life to GOD for his blessing throughout my life Milestone in life are not only achieved by individual efforts but by the blessing and guidance of elders near and dears/ones. I acknowledge all of them.

I consider this as a great privilege to express my deep sense of gratitude to my guide **Dr. Vipin Agrawal Director of ACME INSTITUTE OF PHARMACY BAREILLY.,**

I must place on record my thanks to my faculty members Especially., **Monika leel, Priya Singh, Mohit Kumar, Shivam Verma,** who Helped me directly and indirectly and without it not possible to do this work.

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