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Research Article

Phytochemical Screening of *Euphorbia thymifolia* Linn

G.C. Mamatha*, E. Venkatanagaraju, K. Neelima, P. Madhulatha, V. Madhuri
Department of Pharmacognosy and Phytochemistry, Acharya & B.M. Reddy College of Pharmacy, Soladevanahalli, Bangalore-560107, India

***Corresponding author**
G.C.Mamatha
Email: mamatha@acharya.ac.in

Abstract: This work has been undertaken for the preliminary phytochemical studies on different extracts of *Euphorbia thymifolia* Linn belongs to family *Euphorbiaceae* reveals the presence of steroids, glycosides, carbohydrates, flavanoids, triterpenoids, gums, fats & oils, tannins & phenolic compounds. Where as alkaloids, proteins and amino acids were totally absent in this plant.
Keywords: *Euphorbia thymifolia Linn*, Euphorbiaceae, phytochemical studies, steroids and alkaloids

INTRODUCTION

Euphorbia thymifolia Linn; (Euphorbiaceae) in ayurveda is called as Chhoti dudhi, laghu dugdhikaa, in English -chicken weed, red caustic creeper, asthma plant, in unani- Dudhi khurdi [1]. This species is globally distributed in pantropics.With in India, it occurs throughout the plains and low hills, ascending to 2600mts in the hills. This is common in waste places, hedges & road sides [2]. It is a small annual herb, more or less hispidly pubescent; stems prostrate, divaricately branched, slender, cylindric, more or less hairy. Leaves opposite, very small, numerous, 3-6 by 2.5-4mm., obliquely oblong or elliptic-oblong, rounded at apex, crenulate, glabrous above, glaucous and usually slightly pubescent beneath, base rounded, very unequal-sided; petioles very short; stipules fimbriate. Involucres axillary, solitary or 2-3 in an axil, campanulate, 0.8mm. long, obtusely keeled, pubescent; styles short, 2-fid. Seeds 1.25mm. long, quadrangular, bluntly pointed, with 5 or 6 transverse furrows [3]. Charaka prescribed Dudhika as an ingredient of vegetable soup for diarrhoeal and painful bleeding piles [1]. It is believed to possess Diuretic, Laxative, and Detumescent, anti-malarial, anti-diarrheic, anti-rash, anti-dysentery, anti-carbuncle detoxification and anti-hemorrhoidal activity [4]. Euphorbia thymifolia possess anti-oxidant and anti-viral activities [5]. The plant is also used to treat eye swelling and discharge [6]. Present study aims at exploring the details of phytochemical investigation of *Euphorbia thymifolia.*

MATERIALS AND METHODS

Sample collection and preparation

Euphorbia thymifolia collected from local areas of Bangalore city and was identified by Dr.Jawahar raveendran, incharge- Raw Drug Repository, FRLHT, Bangalore, Karnataka where a Voucher specimen is deposited. The plant material was shade dried and powdered and passed through sieve no. 40 ; and stored in a well closed air tight container.

Extraction

The powdered material was subjected to hot continuous extraction in a soxhlet extractor, successively with petroleum ether (40-60°C), chloroform, ethanol. Finally the powdered material was macerated with chloroform water for 24hrs to obtain aqueous extract. Each time before extracting with next solvent, the powdered material was dried in hot air oven below 50°C. Each extract was then concentrated by distilling off the solvent by evaporation to dryness on a water bath. All the extracts were stored in refrigerator for qualitative analysis and pharmacological studies. Nature and % yield of extracts are shown in table-1.

Ash, extractive and loss on drying values

Ash values such as total ash, acid insoluble ash, water soluble ash for *Euphorbia thymifolia* was 8.82 , 1.06 and 2.62% respectively. Extractive values like alcoholic, aqueous, chloroform, pet.ether (40-60°C) was 16, 25.28, 16 and 23.04% respectively. Loss on drying values was found to be 7.3% [7].

Phytochemical analysis

The freshly prepared extracts were chemically tested for the presence of different constituents using standard methods [8-10].

RESULTS AND DISCUSSION

The result of phytochemical tests carried out for plant extracts of *Euphorbia thymifolia Linn* are presented in table-2. It has been found that pet.ether (40-60°C) extract contain hexose sugars, fats and oils, steroids, triterpenoids and cardiac glycosides.

Chloroform extract contains gums, fats and oils, tannins and phenolic compounds. Alcohol extract contains carbohydrates, fats and oils, steroids, saponin glycosides, flavanoids, triterpenoids, tannins and phenolic compounds. Aqueous extract contains steroids, saponin glycosides, flavanoids, triterpenoids, tannins and phenolic compounds. But alkaloids, proteins and amino acids are absent in all the four extracts. Further activity and isolation are in progress.

Table 1: Nature and Percentage Yield of Extracts

Extracts	Nature	Colour	Weight (gm)	%yield (w/w)
Petroleum ether 40-60˚C (355.574gm)	semisolid	Dark green	21.22	5.96
Chloroform	semisolid	Blackish green	3.71	1.04
Alcohol	semisolid	Brownish green	34.56	9.71
Aqueous	semisolid	Reddish brown	49	13.7

Table 2: preliminary phytochemical investigation of *Euphorbia thymifolia linn*

Sl. No.	Phytoconstituents	Petroleum ether extract	Chloroform extract	Alcohol extract	Aqueous extract
1	Carbohydrates	+	-	+	-
2	Proteins	-	-	-	-
3	Amino acids	-	-	-	-
4	Steroids	+	-	+	+
5	Triterpenoids	+	-	+	+
6	Glycosides	+	-	+	+
7	Flavanoids	-	-	+	+
8	Alkaloids	-	-	-	-
9	Tannins & phenolic compounds	-	+	+	+

Note: '+' = Present; '-' = Absent

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