International Journal of Advanced Science and Research
ISSN: 2455-4227, Impact Factor: RJIF 5.12
www.allsciencejournal.com
Volume 2; Issue 2; March 2017; Page No. 60-63

Preliminary phytochemical and biochemical studies on *Euphorbia hirta,* L.

***Lavanya I, Arul Sheeba Rani M**

M.Sc., Botany Nirmala collage for Women, Coimbatore, Tamil Nadu, India

Abstract
The various medicines are used at present day for human diseases have been commonly originated from the naturally available plants. Herbal plant products may even replace the synthetic drugs as they are safe to use effective no side effects and reduce the cost related with the treatment. Hence, the present study was undertaken to find out the phytochemical constituents and the biological activity of an important medicinal herb. The plants were powdered and extracted with the ethanolic solvent. The extracts were subjected to preliminary Phytochemical, biochemical using standard method. The present study aim to reveal the presence of saponins, phenols, alkaloids, Proteins, tannins, flavonoids, carbohydrate, starch and terpenoides.

Keywords: *Euphorbia hirta*, ethanol, Soxhlet extractor

Introduction
Medicinal herbs are the local heritage with global importance. Many locally available plants which are not usually consumed by mankind due to the lack of knowledge about them. It has curative properties due to presence of various complex chemical substances of different composition, which are found as secondary plant metabolites in one or more parts of these plants. These plant metabolites according to their composition are grouped as alkaloids, glycosides, corticosteroids, essential oils etc. The plant has been reported as increase in urine output, antidiarrheal, antispasmodic, anti-inflammatory etc. In India it is used to treat worm infestations in children - dysentery, jaundice, pimples, digestive problems and tumors. Decoction of dry herbs is used for skin diseases. Decoction of fresh herbs is used as gargle for the treatment of thrush. Root decoction is also beneficial for nursing mothers deficient in milk. Roots are also used for snake bites. The primary and secondary metabolites are naturally synthesized in all parts of the plant body. They have tremendous impact on the health care system and may provide medical health benefits including the prevention and treatment of diseases and physiological disorders.

Materials and Methods
Study Area - (Fig -1&2)
Tamil Nadu is one of the 28 states in India. Its capital is Chennai (Formerly known as Madras) the largest city. Tamil Nadu lies in the southern most part of the Indian peninsula and is bordered by the union territory of Puducherry and the states of Kerala, Karnataka and Andhra Pradesh. Coimbatore is the city in Tamil Nadu, South India. It is the capital city kongunadu region and is often been referred to as the Manchester of South India. The Alvernia school campus is situated in the district of Coimbatore, which has a pleasant climate due to the presence of forests to the north and the cool winds blowing through the Palghat gap in the Western Ghats. The school campus is pollution free and eco-friendly.

Fig 1: Location Map

Fig 2: Study Area

Collection of the sample

For the present study plant sample is selected at Ramanathapuram to find out the "phytochemical, biochemical and antibacterial activity". The entire plants were cleaned to remove adhering dust and then dried under shade. The dried plant sample powdered with the help of a Pulverizer. The powdered sample was stored in air tight container used for further studies. The data were then processed in tables and chart.

Systematic position

Division	:	Plantae
Class	:	Dicotyledons
Order	:	Malpighiales
Family	:	Euphorbiaceae
Genus	:	*Euphorbia*
Species	:	*E. hirta*, L.

Fig 3: Habit of *Euphorbia hirta*

Euphorbia hirta (asthma-plant) is a tropical weed, possibly native to India. It is commonly known as Ammanpacharisi. It is a hairy herb that grows in open grasslands, roadsides and pathways. It is usually erect, slender-stemmed; spreading up to 80 cm tall, though sometimes it can be seen lying down. The leaves are opposite, elliptical, oblong with a faintly toothed margin and darker on the upper surface. Flowers are small, unisexual, solitary, numerous and crowded together in auxiliary cymes about 1cm in diameter. The fruits are yellow, three-celled, keeled capsules with wrinkled seed. The stem and leaves produce a white or milky juice when cut. It is frequently seen occupying open waste spaces, banks of watercourses, grasslands, road sides, and pathway. It is widely used as a traditional medicine herb in all the tropical countries, and is also a very popular herb amongst practitioners of traditional medicine, widely used as a decoction or infusion to treat various ailments including intestinal parasites, peptic ulcers, heartburn, vomiting, amoebic dysentery, asthma, bronchitis, fever, laryngeal spasms, emphysema, coughs, colds, kidney stones, menstrual problems, sterility and venereal diseases.

Preparation of the extract

The extract of the powdered leaf material was prepared by soxhlet extraction method. About 30 gm of powdered plant material was uniformly packed into a thimble and extracted with 375 ml of ethanol. The process of extraction continued for 24 hours or till the solvent in siphon tube of an extractor become colourless.

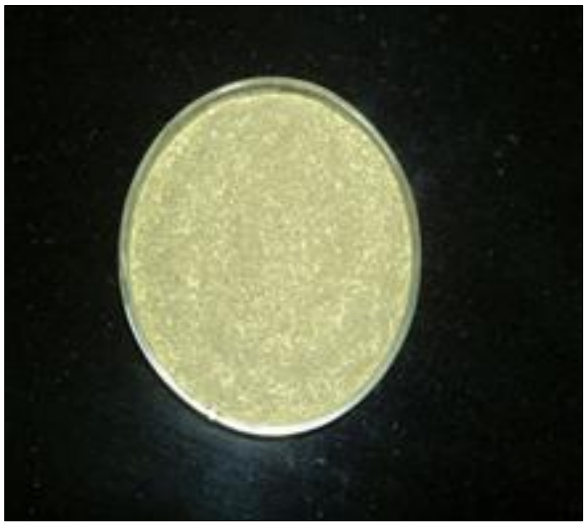

Fig 4: Powdered sample

Fig 5: Ethanolic extract of the sample

Preliminary phytochemical analysis

The phytochemical screening of ethanol extract of *Euphorbia hirta*were analysed by standard methods and shown various phytochemical constituents such as saponins, phenols, alkaloids, proteins, tannins, flavonoids, carbohydrates and terpenoids.

Biochemical analysis

The biochemical analysis of Carbohydrate and Starch were analysed by Anthrone method (Hedge, J.E. and Hofreiter, B.T 1962).

Protein estimation were analyzed by Lowry's method/

Results and Discussion

The phytochemicals derived from plant extract serve as a prototype to develop less toxic and more effective medicines in controlling the growth of the microorganisms. They are organic compounds that are not directly involved in the normal growth, development and reproduction of organisms. The phytochemical screening was done to identify the chemical compounds that are synthesized by plants which are used to perform important functions such as defend to against bacteria. Successive isolation of the botanical compounds from the plant material is largely dependent on the type of solvent used in the extraction procedure. The present study is done phytochemical screening of ethanolic extract of *Euphorbia hirta.*

Table 1: Qualitative analysis of phytochemicals present in the Ethanolic extract of *Euphorbia hirta*, L.

S.No	Types of compounds	Ethanolic extract
1	Saponins	+
2	Phenols	++
3	Alkaloids	+
4	Proteins	+
5	Tannins	++
6	Flavonoids	++
7	Carbohydrates	+
8	Quinone	-
9	Terpinoids	++
10	Glycosides	-

(++ indicates strongly present, + indicates moderately present, and – indicates absent)

Qualitative phytochemical analysis of ethanolic extracts of *Euphorbia hirta* were represented in (Table1). Preliminary phytochemical screening of *E. hirta* revealed the presence of saponins, phenols, alkaloids, proteins, tannins, flavonoids, carbohydrates and terpinoids. Among that, phenols, flavonoids, tannins and terpinoids are highly present. Quinone and glycosides are absent in ethanolic extract of *E. hirta.* Similar studies have been reported by, stated that *E. hirta* function for the treatment of asthma is probably due to the presence of flavonoids, sterols and terpinoids.

Table 2: Carbohydrates Protein content present in *Euphorbia hirta*

Sample	Carbohydrate content in mg/ gm	Starch content in mg/gm	Protein content in mg/ gm
Euphorbia hirta	54 mg	48.6 mg	33.6 mg

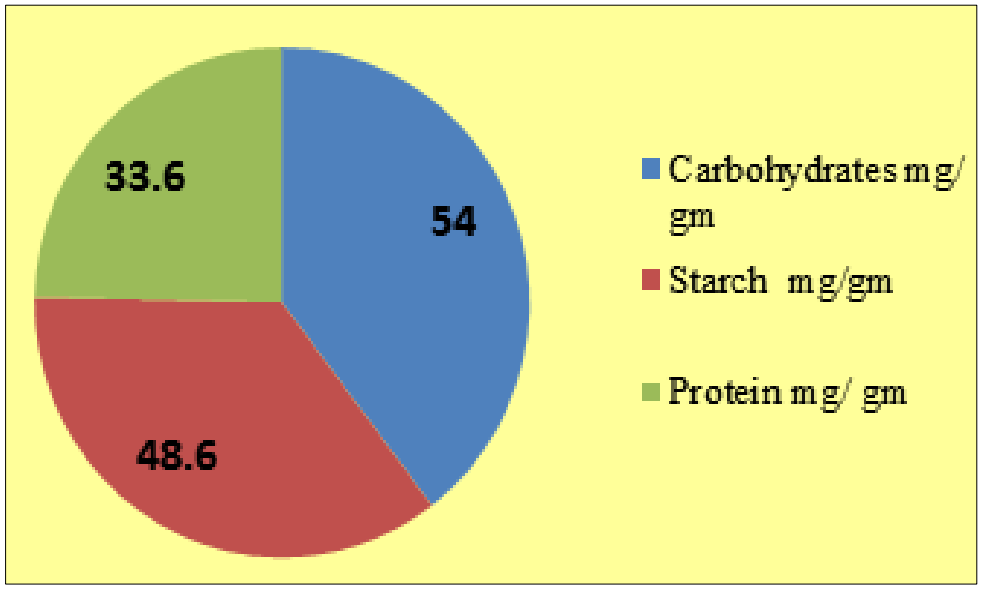

Fig 6: Carbohydrates, Starch and Protein contents present in the selected sample

The chart indicates that the presence of biochemicals in *Euphorbia hirta* that is 54 mg of Carbohydrates 48.6 mg of starch and 33.6 mg of protein content present.

Preliminary Phytochemical screening of ethanol extract of *Euphorbia hirta* were analyzed by the standard methods and shown the presence of various phytochemical constituents such as saponins, phenols, alkaloids, proteins, tannins, flavonoids, carbohydrate and terpenoids which have tremendous health benefits including prevention and treatment of diseases. Biochemical analysis indicates the presence of Carbohydrate, Starch and Protein content in *Euphorbia hirta*. These are the important components of food. It contributes energy for the human being. It revealed that 54 mg /gm of carbohydrates 48.6 mg/gm of starch and 33.6 mg/gm of proteins were present in this medicinal plant. Among these nutrients Carbohydrates are present higher in *Euphorbia hirta.* The presence of secondary metabolites and macro nutrients the plant contains medicinal values because the presence of high medicinal values it can be used in the traditional medicine in alternative form of healthcare for human beings.

References

1. EI-Mahmood Muhammad Abubakar. Antibacterial activity of crude extracts of *Euphorbia hirta* against some bacteria associated with enteric infections. Journal of Medicinal Plants Research. 2009; 3(7):498-505.
2. Hedge JE, Hofreiter BT. In: carbohydrate chemistry, 17 (Eds. Whistler R.L. and Be Miller, J.N.), Academic press, New York. 1962.
3. Igoli JO, Ogaji TA, Tor-Anyiin INP. Traditional Medicine Practice amongst the Igede People of Nigeria. Part II. Afr. J. Trad. Compl. Altern. Med. 2005; 2:134-152.
4. Nagori BP, Solanki R. Role of medicinal plant in wound healing, Res J Med Plant. 2011; 5(4):392-405.
5. Sandeep BP, Nilofar SN, Chandrakant SM. Review on Phytochemistry and Pharmacological Aspects of *Euphorbia hirta Linn*. J. Pharma. Res. Health. Care 1. 2009, 113-133.
6. Shanmugaraju V, Chidambara Rajan P, Abirami N, Rajathi K. Antibiogram and GC analysis of *Euphorbia hirta* leaf extract. Anc Sci Life. 2007; 24:1-3.
7. Chanda S, Kaneria M. Indian nutraceutical plant leaves as a potential source of natural antimicrobial agents. A. Mendezi Vilas, science against microbial pathogens: Communicating Current Research and Technological Advances. Fomatex Research center publication, Spain. 2011, 1251-1259.
8. Chanda S, Dudhatra S, Kaneria M. Antioxidative and Antibacterial effects of seeds and fruit rind of nutraceutical plants belonging to the fabaceae family. Food Funct. 2010; 1(3):308-315.
9. Chopra RN, Chopra IC, Handa KL, Kapur LD. Calcutta India. Academic Publishers. Indigenous drugs of India. 1994.
10. Edeoga HO, Okwv D, Mbaeble BO. Phytochemical constituents of some Nigerian medicinal plants. Afr. J. Biotechnol. 2005; 4(7):685-688.
11. EI-Mahmood Muhammad Abubakar. Antibacterial activity of crude extracts of *Euphorbia hirta* against some bacteria associated with enteric infections. Journal of Medicinal Plants Research. 2009; 3(7):498-505.
12. Galvez J, Crespo ME, Jimenez J, Suarez A, Zarzuelo A. Antidiarrheic activity of quercitrin in mice and rats. J Pharm Pharmacol. 1993; 45:157.
13. Galvez J, Zarzuelo A, Crespo ME, Lorente MD, Ocete MA, Jimenez J. Antidiarrheal activity of *Euphorbia hirta* extract and isolation of an active flavanoid constituent. Planta Med. 1993; 59:333-36.
14. Gnecco S, Perez C, Bittner M, Silva YM. Distribution pattern of n-alkanes in Chilean species from the Euphorbiaceae family. Bol Soc Chil Quim. 1996; 41:229-33.
15. Hore SK, Ahuja V, Mehta G, Pardeeb Kumar, Pandey SK, Ahmad AH. Effect of aqueous *Euphorbia hirta* leaf extract on gastro intestinal motility. Fitoterapia. 2006; 77:35-38.