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FLUORESCENCE ANALYSIS OF *EUPHORBIA HIRTA* L.

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ABSTRACT

Unfortunately, most of the compounds have not properly been evaluated for the exploration of new lead molecule or pharmacophore. Hence, extensive research is required to find out the mechanisms of action as well as bioactivity of the various phytochemicals and efficacy of the medicinal values of plants. The plant *Euphorbia hirta* is commonly called as Asthma weed. It belongs to the family Euphorbiaceae. The present study is detailed out to complete fluorescence analysis. The study will provide proper information about the presence of bioactive molecules in the crude drug i.e. *Euphorbia hirta* plant. Thus in the near future *Euphorbia hirta* extracts could be further exploited as a source of useful phytochemical compounds and may play a very important role in modern system of medicine.

KEYWORDS: *Euphorbia hirta,* fluorescence analysis, bioactive molecules.

INTRODUCTION

***Euphorbia hirta* plant.**

The plant *Euphorbia hirta* is commonly called as Asthma weed. It belongs to the family Euphorbiaceae. Vernacular names- English: pill-bearing spurge, asthma plant, hairy spurge

and garden spurge. Family Euphorbiaceae is also called spurge family consisting of about 322 genera and 8910. Species are predominantly cosmopolitan with strongest representation in the humid tropical and sub-tropical regions of both hemispheres. It is the sixth largest family in the world. Most spurges are herbs, but some, especially in the tropics, are shrubs. *E. hirta* is an evergreen medium sized shrub attaining a height of 4-5 feet, found throughout India, plentifully in the plains of Maharashtra (Hooker, 1883). Leaves of *Euphorbia hirta* contains alkaloids, diterpenoids, stigmasterone, beta- siteosterol, carboaromatic compounds polyols. Alkaloids and phenolic acids are major chemical compound present in stem of *Euphorbia hirta*. Roots contain a triterpenoids, barringenic acid, euphane triterpenoids, phytosterolin gallic acids, and linoleic acids (Kapoor, 1990).

USES

Leaves used in the treatment of snakebite, applying crushed leaves to a wound can also stop bleeding. The decoction of the roots of *E. hirta* is used to heal various female disorders. Roots are cooling, aperient and expectorant, stimulating and emetic; supposed to be similar to *Cinchona* in its properties.

The fruits are bitter, coolant, acrid, astringent to the bowels, lumber pain, nasal catarrh and hallucinations, diuretic, expectorant, intestinal worms, wounds, ulcers, skin diseases, leprosy, cough, intermittent fever etc. Seeds are very warm and dry and are also reported to relieve seminal weakness and gonorrhea. (Kapoor, 1990).

MATERIALS AND METHODS

The plant material i.e. leaves and stem of *Euphorbia hirta* for the present work was collected from Borivali and Waghoba forest (Palghar) & authenticated. The collected plant material was dried in the oven at 40^{o} C over a period of seven days. The dried plant material was powdered and passed through a series of sieves to obtain different particle sized material. The smallest particle sized material (0.2mm) was used for carrying out instrumental analysis and anti-microbial activities whereas the remaining material was used to carry out other activities. Fluorescence study of powdered leaves and stem of *Euphorbia hirta* (Chase & Pratt, 1949).

RESULTS

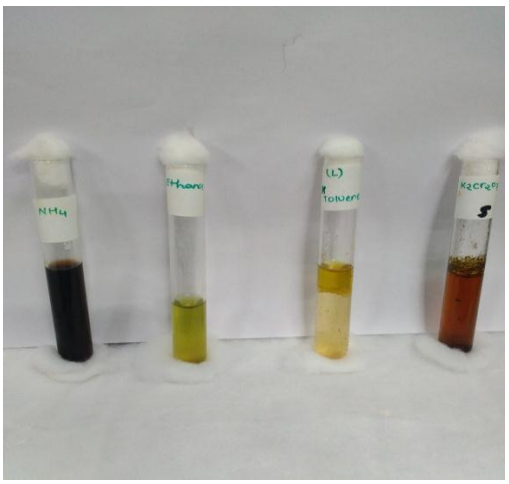
The tests revealed the following results. These indicate the presence of bioactive molecules, which are present in the plant & could be explored as a source of medicine in future.

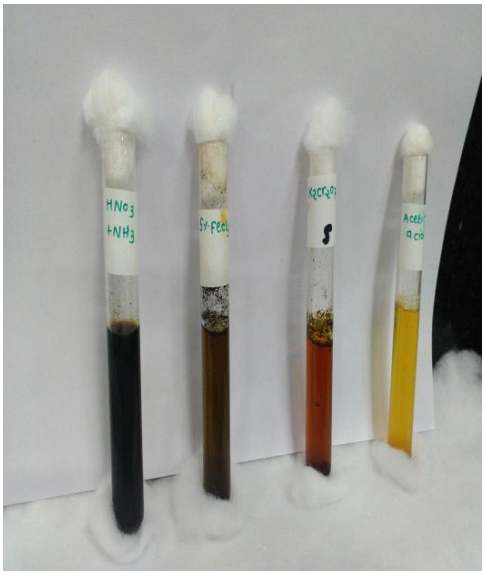
Over the last few years, researchers have aimed at identifying and validating plant-derived substances for the treatment of various diseases. This revival of interest in plant-derived drugs is mainly due to the current widespread belief that "green medicine" is safe and more dependable than the costly synthetic drugs, many of which have adverse side effects. Recently there has been a renewed interest in improving health and fitness through the use of more natural products.

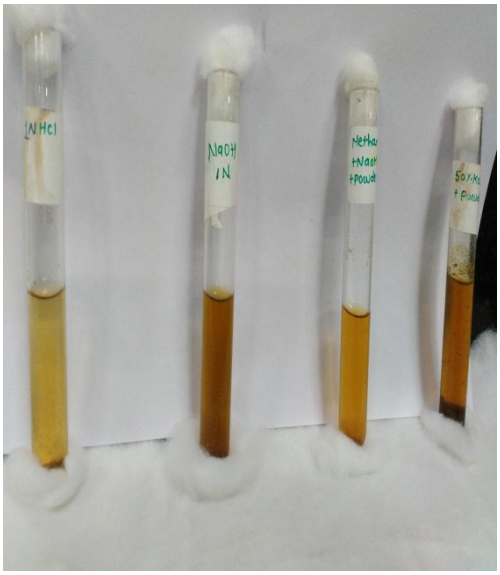
Fluorescence analysis of leaf powder of *Euphorbia hirta*		
Powder+Reagent	**Visible light**	**U.V. light**
1N HCl	Light brown	Colourless
1N NaOH	Light yellow	Yellowish brown
1N NaOH+Methanol	Greenish yellow	Dark brown
50% KOH	Pale yellow	Dark brown
50%H_2SO_4	Brown	Black
Conc. H_2SO_4	Black	Dirty black
Conc. HNO_3	Pale yellow	greenish yellow
Acetic Acid	Light green	Yellow
50% HNO_3	Light yellow	Colorless
Iodine solution	Brown	Yellow
Distilled water	Light green	Colourless
$CHCl_3$	Brown	Reddish brown
Acetone	Dark green	Colourless
Picric acid	Yellow	Green
Ammonia	Light brown	Light brown
Ethanol	Light green	Green
Toulene	Light green	Fluorescent pink
$K_2Cr_2O_7$	Brown	Orangish brown
HNO_3 + NH_3	Light orange	Brown
5% $FeCl_3$	Dirty brown	Dark brown

UNDER VISIBLE LIGHT (LEAF POWDER)

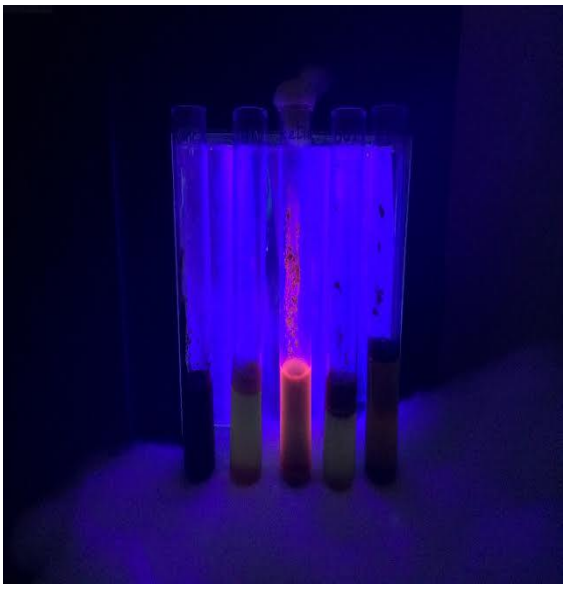
IN VISIBLE LIGHT

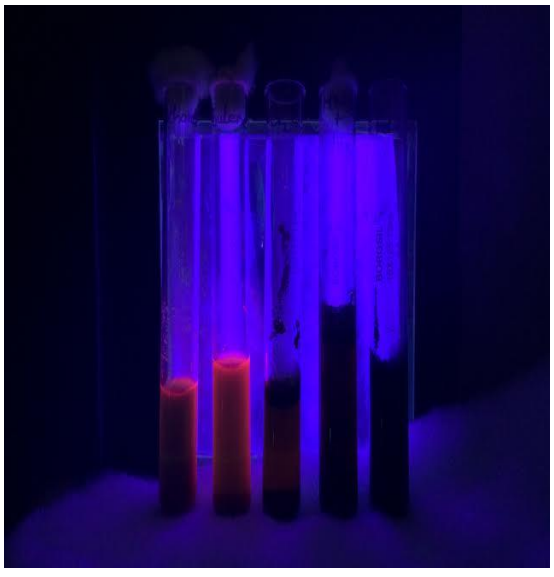


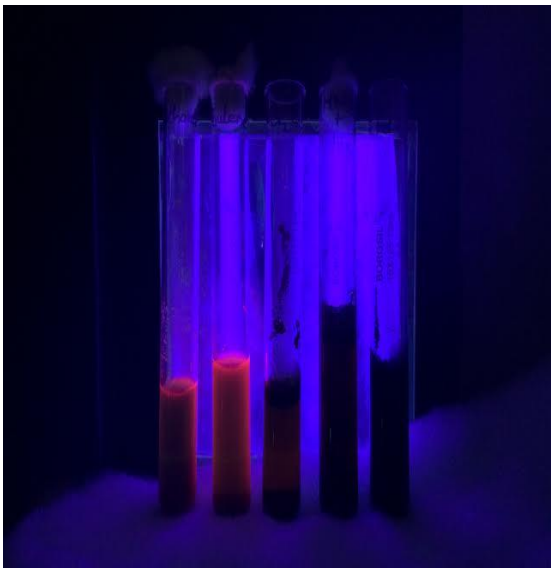




IN UV LIGHT







DISCUSSION

Fluorescence Analysis of *Zizyphus jujuba* Lamk. Leaves & fruits has been studied by Vaidya (2017). Fluorescence analysis of *Musa paradisiaca* has been studied by Vaidya (2016). Pharmacognostic & fluorescence studies of the leaves of *Calophyllum inophyllum* Linn. has already been studied by Vaidya & Agharia, (2015). Fluorescence analysis of *Luffa acutangula* has also been studied by Vaidya (2016). Vaidya & Sambhare (2016) have studied fluorescence analysis of *Eclipta prostrata* (Linn) Linn.

CONCLUSION

In the present study the complete fluorescence analysis was carried out in order to provide proper information about the presence of bioactive molecules in the crude drug i.e. *Euphorbia hirta* plant. With this information in the near future *Euphorbia hirta* extracts could be further exploited as a source of useful phytochemical compounds and may play a very important role in modern system of medicine.

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