WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 7.523
Volume 6, Issue 5, 1237-1242. Research Article ISSN 2277–7105

FLUORESCENCE ANALYSIS OF *ZIZYPHUS JUJUBA* LAMK. LEAVES & FRUITS.

Meenakshi Vaidya*

SVKM'S Mithibai College, Department of Botany, Vile-Parle West Mumbai 400 056, India.

Article Received on
13 March 2017,

Revised on 03 April 2017,
Accepted on 23 April 2017

DOI: 10.20959/wjpr20175-8442

***Corresponding Author'**
Meenakshi Vaidya
SVKM'S Mithibai College, Department of Botany, Vile-Parle West Mumbai 400 056, India.

ABSTRACT

Nowadays there is a renewed interest in crude drugs of plant origin, as they do not have side effects. Fluorescence analysis is a parameter to check the presence of bioactive molecules. The organic molecules absorb light usually over a specific range of wavelength and many of them re-emits such radiation known as luminescence. The phenomenon when re-emission of absorbed light lost only when the substance receiving exiting rays is called fluorescence. Such studies are of help in standardization of the plant material, which can be used as drugs. For the present study the plant *Zizyphus jujuba* belonging to family Rhamnaceae was selected and the fluorescence analysis of the leaves & fruits was carried as they are used as medicine. Leaves are simple, ovate or oblong or orbicular, petiolate with long petioles, serrate and entire margin, rounded at both the ends, slightly unequilateral at the base, glabrous, covered beneath with whitish or buff tomentum, tricostate reticulate venation, stipular spines usually in pairs and the fruit is a globose drupe.

KEYWORDS: *Zizyphus jujuba*, Rhamnaceae, Fluorescence, bioactive, standardization.

INTRODUCTION

Zizyphus jujuba Lamk. belongs to family Rhamnaceae (Hooker, 1883). Synonyms- *Ziziphus mauritiana Herb, Ziziphus sororia Schult, Ziziphus trinervius Roth, Rhamnus jujuba Linn.*

The plant *Ziziphus jujuba* chemically contains flavonoids, saponins, tannins, Vitamin A, Vitamin B, sugars, mucilage, calcium, phosphorus, iron etc. (Kapoor, 1990). The plant *Ziziphus jujuba* is used medicinally for a wide number of ailments. The seeds, fruit of jujuba have been used in traditional medicine for anxiety and insomnia. The fruit are used to alleviate stress and traditionally for anti-fungal, anti-bacterial, anti-ulcer, anti-inflammatory

purposes. It is used as a traditional medicine in combination with other herbal medicines to treat flu, cold. The fruit shows neuro-tropic and neuroprotective properties. The leaves are used for hypoglycemic effects, as a diuretic, emollient, expectorant, anti-cancer, sedative, blood purifier, and in treatment of diarrhoea (Kirtikar & Basu, 2006).

PLANT OF *ZIZYPHUS*

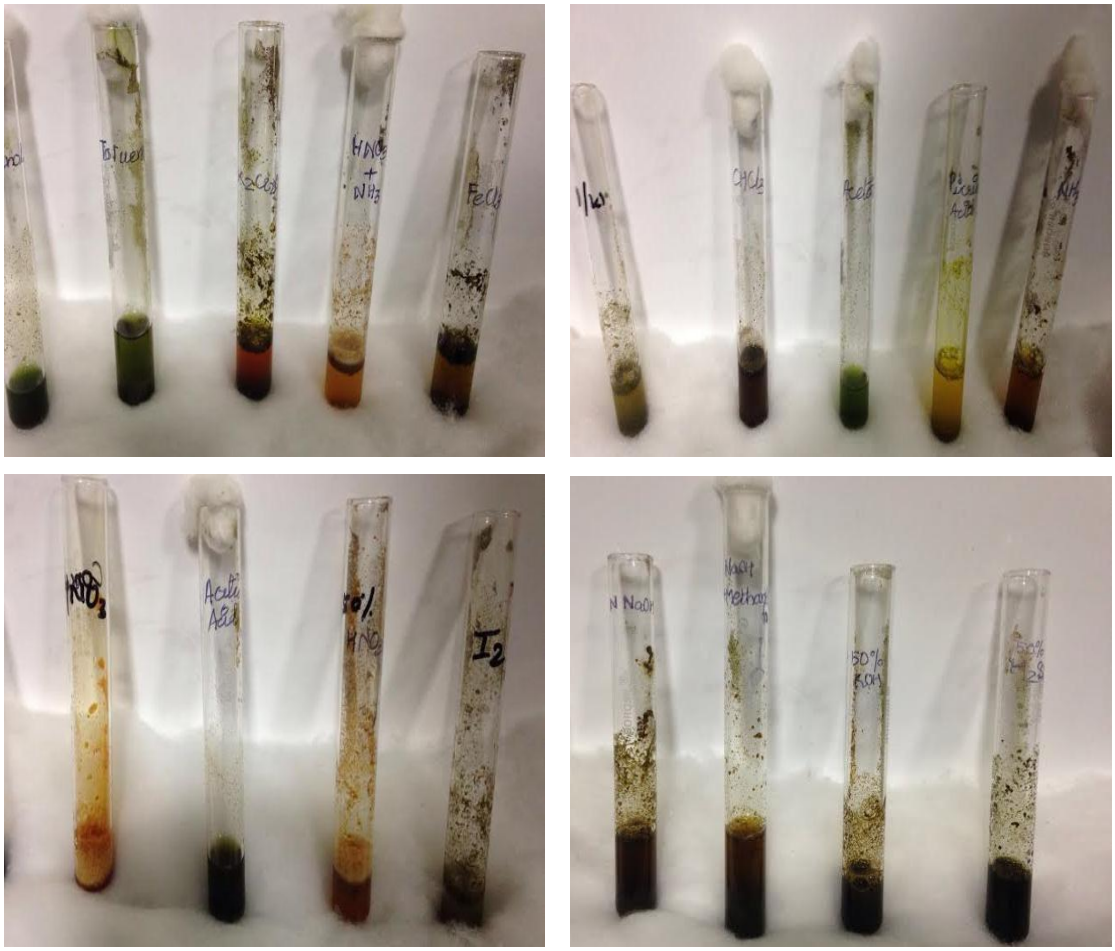
MATERIAL AND METHODS

Collection: The fresh plant material of *Ziziphus jujuba.* Was collected from Dahanu, District –Thane; Borivali, Mumbai. The method used for the analysis is as given by Chase & Pratt, 1949.

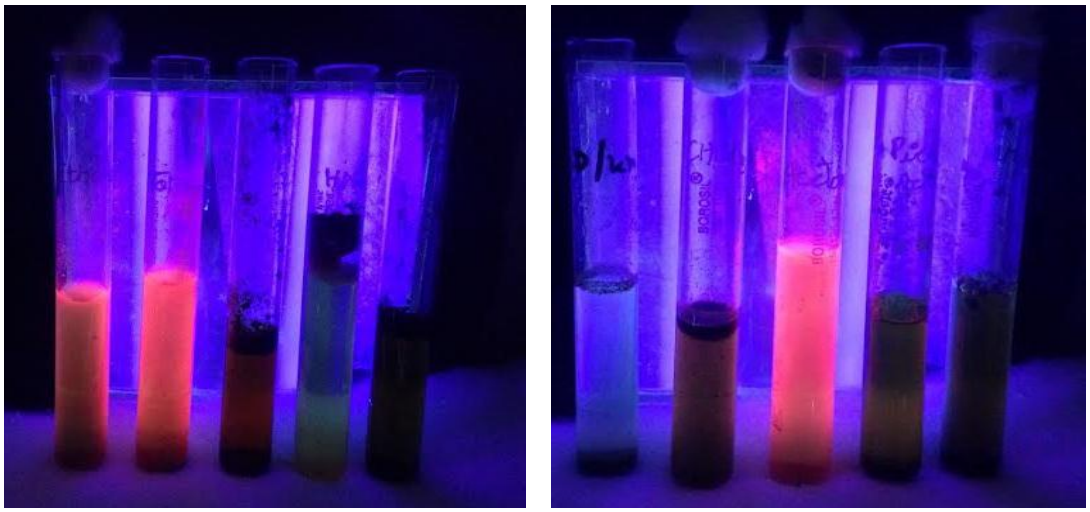
Powder + reagent	Visible light	U.V. light
1N HCl	Light brown	Colourless
1N NaOH	Dark brown	Yellow
1N NaOH + Methanol	Dark brown	Florescent orange
50% KOH	Brown	Dark brown
50%H_2SO_4	Dark green	Dark brown
Conc. H_2SO_4	Black	Dirty black
Conc. HNO_3	Pale yellow	Pale green
Acetic Acid	Light green	Florescent pink
50% HNO_3	Light yellow	Light green
Iodine solution	Brown	Dark brown
Distilled water	Light green	Colourless
$CHCl_3$	Brown	Reddish brown
Acetone	Light green	Florescent pink
Picric acid	Yellow	Green
Ammonia	Light brown	Grey
Ethanol	Light green	Florescent pink
Toluene	Light green	Florescent pink

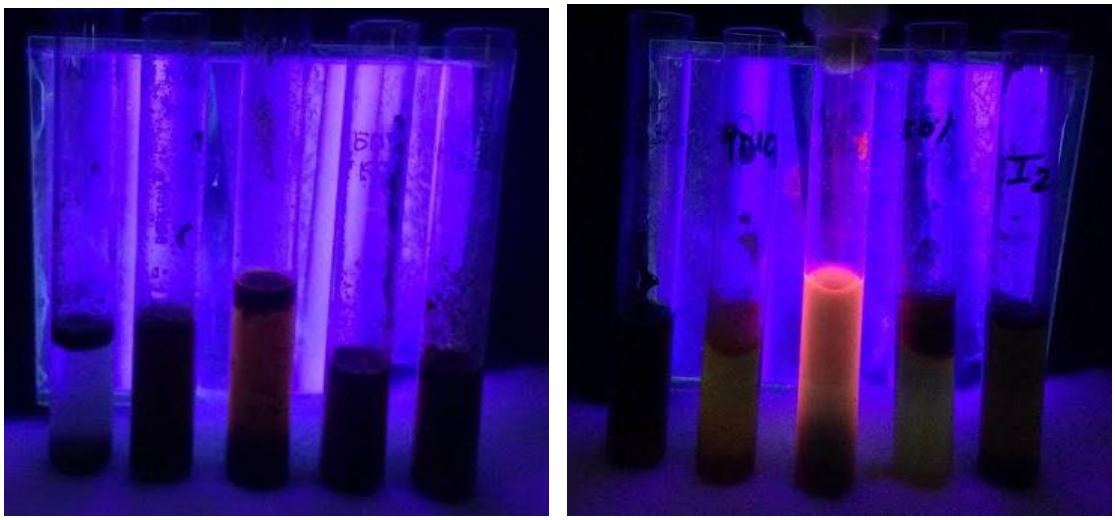
$K_2Cr_2O_7$	Brown	Orangish brown
$HNO_3 + NH_3$	Light orange	Colourless
5% $FeCl_3$	Dirty brown	Dark brown

LEAF - IN NORMAL LIGHT

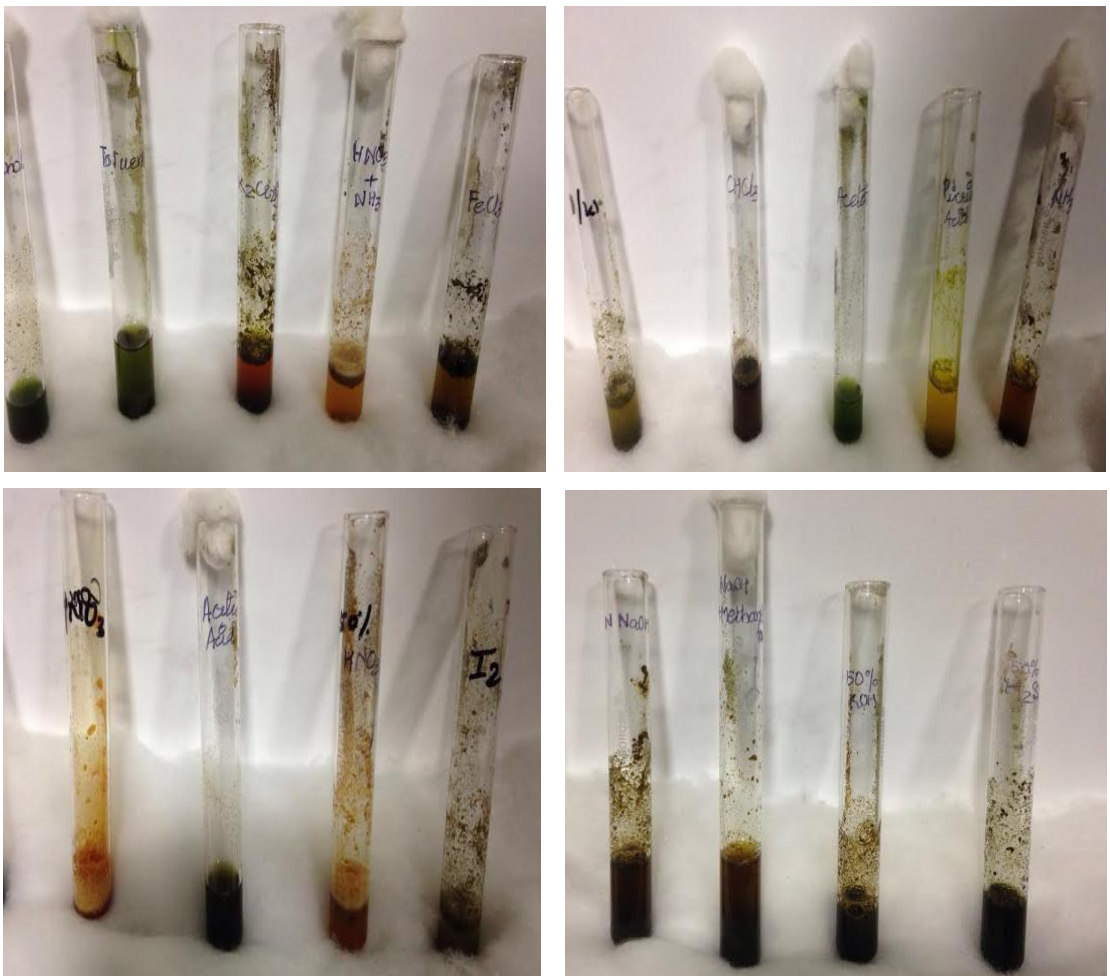


LEAF - IN UV LIGHT

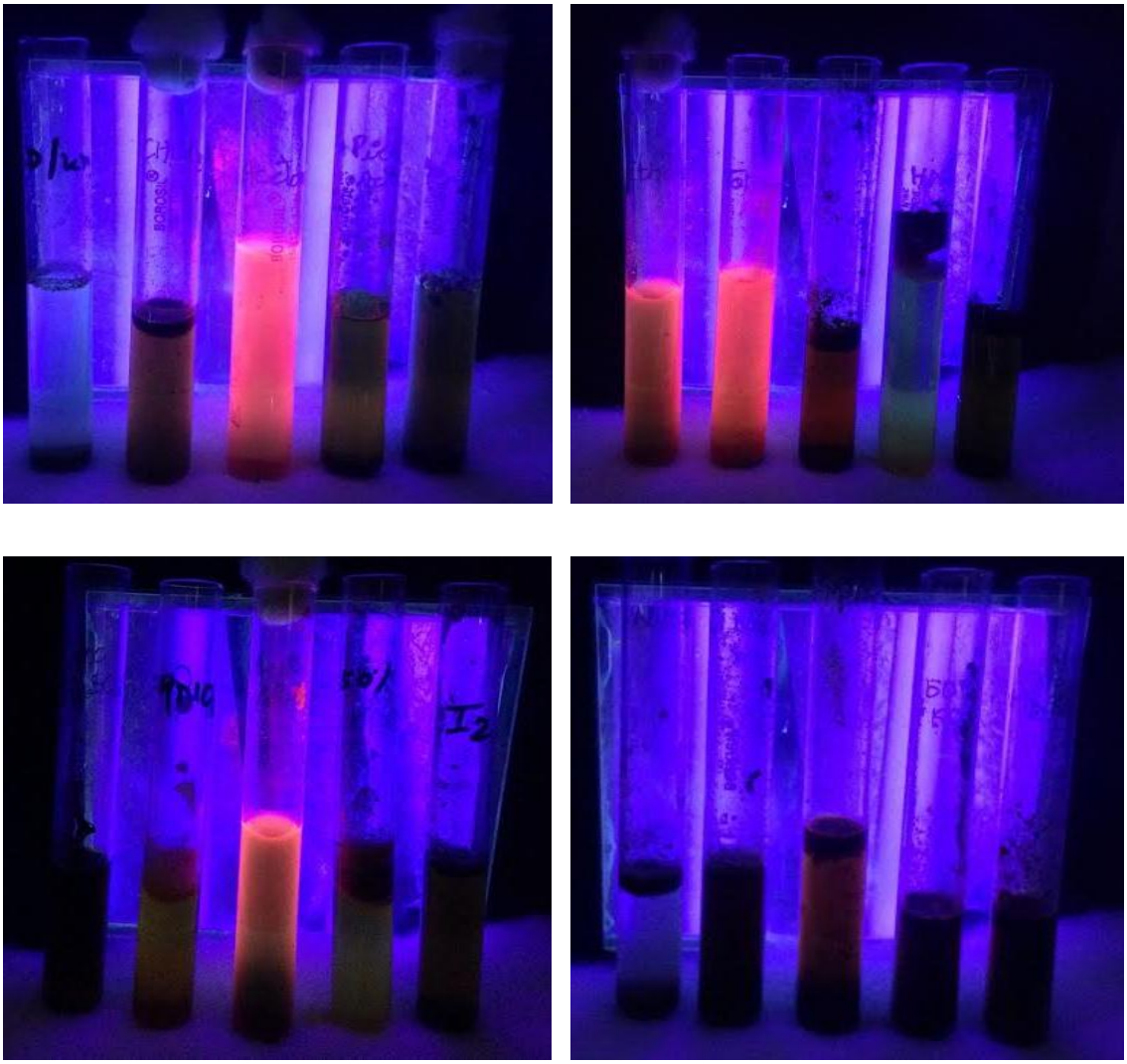




FRUIT- IN NORMAL LIGHT



FRUIT- IN UV LIGHT



CONCLUSION

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

Ayurveda is not being accepted worldwide due to lack of standardization although it is being used in India. To meet this objective, efforts are now being made in various laboratories for standardization of plant drug material. Fluorescence is the phenomenon shown by various chemical constituents present in this plant material. The light absorbed and remitted radiations by the various solvents can be used for the identification of the powdered drug Evans (2002). Fluorescence analysis of leaves and fruit will confirm the presence of bioactive

molecules in them and these can be used to check the quality and purity of plant and its identification. Therefore this information will be useful for further pharmacological and therapeutical evaluation along with the standardization of plant material.

REFERENCES

1. Charles R. Chase Jr. & Robertson Pratt. Fluorescence of powdered vegetable drugs with particular reference to development of a system of identification, Journal of the American Pharmaceutical Association, 1949; 38(6): 324-331.
2. Evans W.C. & Trease G.E. Pharmacgnosy, 15th edition, ELBS publication, New Delhi, 2002; 193-207.
3. Kapoor L.D. Handbook of Ayurvedic medicinal Plants, C.R.C. Press, India, 1990.
4. Kirtikar K. R. & Basu B. D. Indian Medicinal Plants, International Book Distributors, Dehradun, Uttaranchal, India Text, 2006; 2: 1119-1126.
5. Vaidya Meenakshi, Fluorescence Analysis Of *Musa paradisiaca* L. Of Sub-Family Musaceae WJPR, 2016; 5(6): 1509-1512.
6. Vaidya Meenakshi. Fluorescence analysis of *Luffa acutangula* (L.) Roxb. Fruit. WJPR, 2016; 5(8): 1285-1289.
7. Vaidya Meenakshi & E. R. Agharia: Pharmacognostic studies of the leaves of *Calophyllum inophyllum* Linn. International Journal of Green and Herbal Chemistry, June- August 2015; 4(3): 215 - 221, E-ISSN: 2278-3229.