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FLUORESCENCE ANALYSIS OF *MITRAGYNA PARVIFOLIA*(ROXB.) KORTH BARK

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ABSTRACT

Medicinal plants, the green pharmacopeia of nature, have been integral to human health and well-being for centuries. These botanical wonders are endowed with a rich reservoir of bioactive compounds, each with the potential to alleviate ailments and promote healing. From traditional remedies rooted in cultural practices to scientifically validated pharmaceutical discoveries, medicinal plants offer a diverse array of therapeutic possibilities. Fluorescence analysis is a cutting-edge approach that sheds light on the therapeutic potential of medicinal plants. This method involves illuminating plant extracts with light and observing the emitted fluorescence, unveiling a unique molecular fingerprint. By decoding these fluorescent signals, scientists gain valuable insights into the specific bioactive compounds present in medicinal plants. *Mitragyna parvifolia*, commonly known as "Kadamb," is a tree belonging to the Rubiaceae family, native to regions of Southeast Asia and the Indian subcontinent. Traditionally, various parts of the tree, including the leaves, bark, and roots, have been utilized in folk medicine. Indigenous communities have employed extracts from the plant for their analgesic, anti -inflammatory, and antipyretic properties. The plant's potential therapeutic benefits, cultural significance, and ecological aspects are areas of ongoing investigation.

KEYWORDS: *Mitragyna parvifolia*, Rubiaceae, Fluorescence analysis, bioactive compounds.

INTRODUCTION

The term "medicinal plant" encompasses a diverse array of plants with therapeutic properties. These plants serve as a valuable source of compounds for drug development. Various parts of medicinal plants, including seeds, roots, leaves, fruits, bark, flowers, or the entire plant, may be used. These plants contain active compounds with direct or indirect therapeutic effects, which serve as medicinal agents (Jamshidi-Kia, 2018). *Mitragyna parvifolia* (Roxb.) Korth, a member of the Rubiaceae family, holds a significant place in the ayurvedic system of medicine (Ghatak, 2014). The plant has been valued for its various therapeutic properties, benefiting a wide array of health issues such as fever, muscular pain, burning sensation, poisoning, gynecological disorders, cough, and edema. It's also known for its aphrodisiac effects. Furthermore, the fruit juice of this plant has proven helpful in increasing breast milk production for lactating mothers and acts as a lactodepurant. Apart from its medicinal uses, the plant's timber is sought after for applications in furniture, agricultural implements, cooperage, and the paper industry, among other purposes (Choudhary, 2016).

Plant of *Mitragyna parvifolia.*

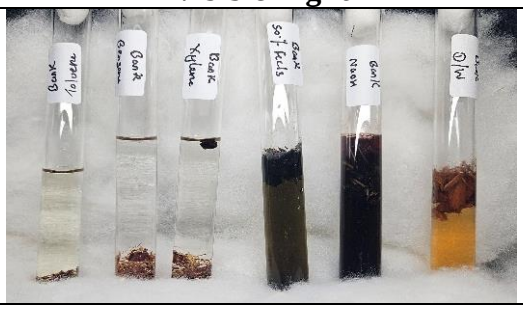
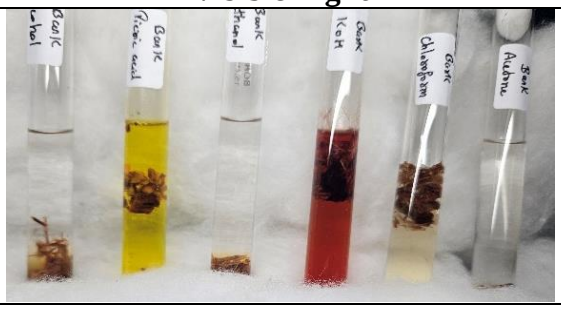
MATERIAL AND METHODS

Collection: The fresh plant material of *Mitragyna parvifolia* bark was collected from Vile Parle west, Mumbai and authenticated. The method used for the analysis is as given by Chase and Pratt, 1949 given in Table 1

Table 1: Fluorescence Analysis of bark powder of *Mitragyna parvifolia* (Roxb.) Korth.

	Visible Light	UV Light
Powder+Conc.HNO_3	Orange	Light green
Powder+ Chloroform	Whitish yellow	Whitish yellow
Powder+ Acetone	Colourless	grey
Powder+ Glacial acetic acid	Colourless	Greenish white

Powder+ Distilled water	Orange	Green
Powder+50%KOH	Orangish red	Black
Powder+ Benzene	Colourless	Colourless
Powder+KOH	Orange	Brownish Black
Powder+50% H_2SO_4	Brownish Black	Black
Powder+50%$FeCl_3$	Greenish black	Greenish Black
Powder+ Ethyl acetate	Colourless	Colourless
Powder+ Methanol	Colourless	Colourless
Powder+Conc.H_2SO_4	Black	Black
Powder+ NaOH	Brownish black	Black
Powder+ Toluene	Colourless	Colourless
Powder+ Picric acid	Yellow	Parrot green
Powder+ Xylene	Colourless	Colourless
Powder+ Alcohol	Colourless	Colourless

Visible Light	Visible Light
	
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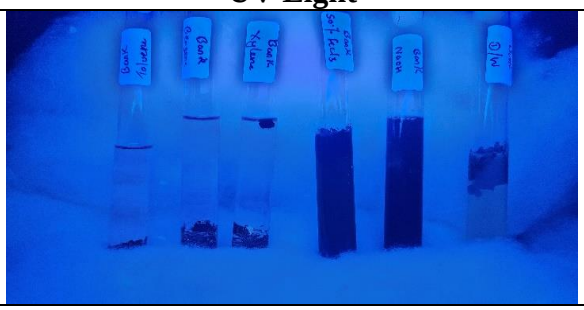
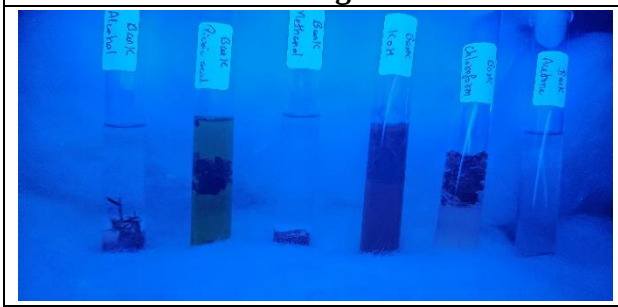
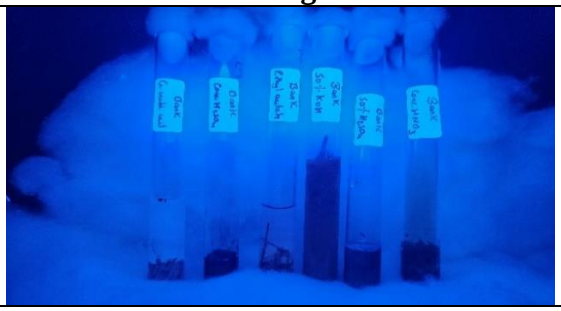
	
UV Light	**UV Light**
	

CONCLUSION

Gupta, (1956) has examined different species of *Rauwolfia* microscopically including the root barks of *R. serpentina* treated with phloroglucinol and HCI under ultraviolet light. The results are satisfactory under ultraviolet light in distinguishing the different species of *Rauwolfia*.

Preetham et al., (2015) studied the organoleptic characters, microscopic studies, physiochemical characters like ash value, extractive values, crude fibre content, fluorescence analysis and preliminary phytochemical testing followed by total phenolic and flavonoids assay of *Gnetum ula* belonging to family Gnetaceae, a medicinal plant widely used to cure ailments like rheumatism, bronchitis, piles, inflammation, jaundice and arthritis. Khalid et al., (2012) evaluated various parameters like macroscopy, microscopy, fluorescence analysis as well as extractive value and quantitative phytochemical screening of different extractives of *Boerhaavia diffusa* L. belonging to family Nyctaginaceae. Nagulan and Nagulan, (2016) investigated the phytochemical, physicochemical, and fluorescence analysis of *Syzygium calophyllifolium* Walp. Charania and Vaidya (2019 & 2023), investigated the fluorescence analysis of *Costus Speciosus* (J. Loenig) Sm. and Cajanus cajan in their study. Vaidya (2017) explores the fluorescence analysis of *Zizyphus jujuba* Lamk., focusing on both leaves and fruits. Vaidya and Vohra (2023) have studied the fluorescence analysis of *Tridax Procumbens* Linn. Fluorescence analysis of *Luffa acutangula* (L.) Roxb. has been studied by Vaidya (2016). Vaidya (2016) has studied the fluorescence analysis of *Musa paradisiaca* L. of sub-family Musaceae. Sawant and Vaidya (2023) have recently studied studied the fluorescence analysis of *Brassica oleracea* var. Capitata; Vaidya and Acharya (2017) have studied fluorescence analysis of *Euphorbia hirta* L.

Fluorescence analysis proves to be a powerful and versatile technique with widespread applications in various scientific disciplines. Harnessing the capabilities of fluorescence analysis in the study of medicinal plant extracts holds promise for identifying novel bioactive compounds and optimizing their extraction processes, ultimately advancing the field of natural product-based drug discovery.

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