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Cynometra Iripa: A Potential Mangrove

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Abstract:

Cynometra iripa Kostel. is a typical mangrove species that occur along west coast of Maharashtra. Present paper describes essential oil composition of the seeds, leaves and stem *Cynometra iripa*. The analysis of essential oil was performed following extraction in methanol and investigated with thin layer chromatographic technique (TLC). This analysis reveals that seeds, stem and leaves of *Cynometra iripa* serves as source of essential oil. The terpene and phenyl propane, sesquiterpens, benzoin, balsams and monoterpene were detected. Myristic in has common occurrence in seeds, leaves and stem of *Cynometra iripa*. Major components of seed oil are myristicin, anethole, polyines, THC, farnesene, benzoic acid. While thymol, myristicin, borneol, anethole, THC, farnesene, benzoic acid, cinnamic acid are major components of stem oil. However, major components found in the leaves are thymol, myristicin, azulene, THC, farnesene, benzoic acid, cinnamic acid and linalyl acetate. The piece of work suggests that *Cynometra iripa* is a potential source of essential oil and serve as a potential coastal bioresource. There are very few individuals of *Cynometra iripa* along the coast of Maharashtra. It is very essential to conserve the potential coastal plant. Immediate action is needed to conserve the habitat.

Keywords: *Cynometra iripa*, TLC, Essential Oil, Maharashtra

Introduction:

Mangrove ecosystem is the most productive ecosystem on the earth. The mangrove *Cynometra iripa*, a member of fabaceae is critically endangered species along coast of Maharashtra. Bhosale et al., (2002) have reported the species both in Sindhudurg and Ratnagiri districts of Maharashtra. An oil is "essential" in the sense that it carries a distinctive scent, or essence, of the plant. Essential oils do not form a distinctive category for any medical, pharmacological, or culinary purpose. Various essential oils have been used medicinally at different periods in history. Medical application proposed by those who sell medicinal oils range from skin treatments to remedies for cancer, and often are based on nothing better than historical accounts of use of essential oils for these purposes. Claims for the efficacy of medical treatments and treatment of cancers in particular, are now subject to regulation in most countries, and to avoid criminal liability, suppliers of fringe remedies are becoming increasingly vague in what they promise. In the present work, the chemical composition of the essential oils from leaves, stem, and seeds of *Cynometra iripa* are reported.

Material and Methods:

The powdered material of seeds, stem and leaves were analyzed to investigate composition and screening of essential oil with the help of thin layer chromatographic technique (TLC) according to the method described by Somchai et al., (2008). Accurately

weighed one g. of seed, stem and leaves powder was mixed in 20 ml. methanol and refluxed for 20 min. Then the solution was transferred to evaporating dish to evaporation at RT. Afterwards the concentrate remained in the dish was dissolved in 0.5 ml methanol and used as source of extract for TLC. The synthetic aluminium sheet used and 20 ml extract was loaded with micropipette at equivalent points. This TLC plate was developed into toluene: ethyl acetate (90: 10) solvent system for sufficient period in glass jar. When the chromatogram was sufficiently developed, taken out, air dried and then sprayed with vanillin-sulphuric acid spraying reagent, in segmental manner i.e. first solution A (1% ethanolic vanillin) was sprayed, this was followed by spraying of solution B (10% ethanolic sulphuric acid). Then this TLC was dried in oven for few minutes at 105°C to develop spots. The Rf values of detected spots were then compared with standard values of the authentic standard (Wagner and Bladt, 2003).

Results and Discussion:

An essential oil is concentrated liquid containing volatile aroma compound from plants. They are also known as volatile, ethereal oils or aetherolae or simply oil of plant from which they were extracted eg. - Oil of clove, Khus oil or Vetiver oil. Essential oil is produced in varied type of plant parts eg. leaves, reproductive structures, stem and roots etc. the contents of essential oil is mainly terpenoids but other chemicals like phenylpropanoids are also present in some oil plants. Present observation with *C. iripa* essential also indicates a similar trend. The essential chemical components are broadly categorized into two groups-terpenoids and phenyl propanoids but the terpenoids are very common and give characteristic flavour and odour to the oils.

The essential oil composition of leaves, stem and seeds of *Cynometra iripa* is determined. From the Plate and Table it reveals that, terpene, phenyl propanoids, sesquiterpene, benzoin, balsams and monoterpenes were found to be present. Myristicin is commonly found in seed, leaves and stem of *C. iripa*. Major component of seeds oil are myristicin, Anethole, polyines, THC, Farnesene, Benzoic acid-cinnamic acid are major components of stem oil. However, the components of leaves are thymol, myristicin, azulene, THC, farnesene, Benzoic acid - cinnamic acid, Linalyl acetate. This analysis reveals that seeds, stem and also leaves of *Cynometra iripa* may serve as source of essential oil.

Conclusion:

This is the first attempt to analyze essential oil from different parts of *Cynometra iripa*. The compounds found are likely to be responsible for the special odour. The comparison will lead to identification of novel flavour and odour compounds and be a step towards understanding the chemistry behind the *Cynometra iripa* leaves, stem and seeds.

The results of this attempt have proved the resource value of *Cynometra iripa* as cosmetics and pharmaceuticals. The identified compounds are already in use as flavouring substance. Composition of essential oil has proved the potential of *Cynometra iripa* as a "Bioresource." Further value based attempts are under progress.

Table1 Composition of essential oil from leaves, stem and seeds of *C. iripa*

Sr. No.	Compounds	Rf-value	Leaves	Stem	Seed
I	Terpene and Phenyl propane	0.58	++	++	-
		0.75	+++	+++	+++
	1. Thymol	0.24	-	+++	+
	2. Myristicin	0.92	-	+	++
	3. Borneol 4. Anethole				
II	Sesquiterpens	0.53	-	-	++
	1. Polyines	0.93	++	-	-
	2. Azulene	0.99	+++	+++	++
	3. THC, farnesene				
III	Benzoins	0.11	+++	+++	+++
	1. Benzoic acid cinnamic acid				
IV	Balms	0.81	-	+	-
	1. Cinnamoyl benzoate caumaroyl benzoyl				
V	Monoterpene 1. Linalyl acetate	0.69	+++	-	-

- = not detected + = Present (via) ++ = Present in greater quantities +++ = Prominent

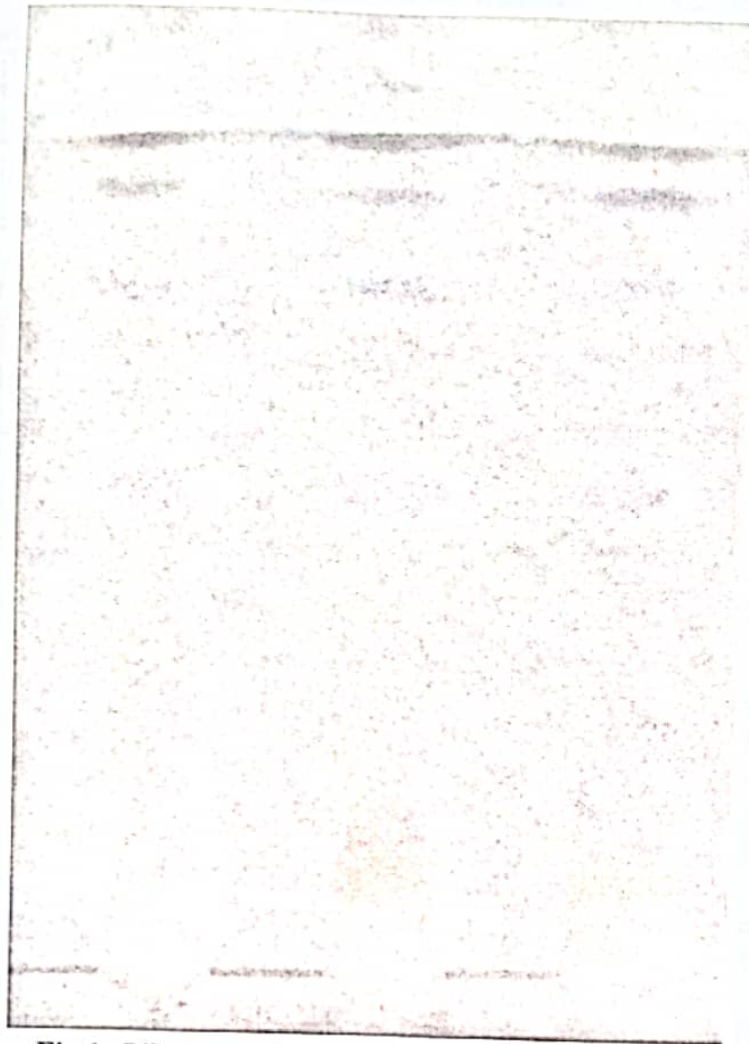


Fig.1. Oil composition from leaf, stem and seed by TLC

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