

A BRIEF STUDY ON THE PLANT TULSI (OCIMUM SANCTUM)

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Abstract

Phytochemical analyses A preliminary phytochemical enquiry discovered the existence of alkaloids molecules (as indicated by the look of such a red colouring), flavonoids (as indicated by the look of a light pink and just a blackish crystallise), and a nonattendance of flavonoids (as indicated by the dearth of such a measured pink color change) in each of the referenced that though plant's extracts.. The aqueous extract produced a favorable result in Salkowski's test (which looked for the production of a dark - brown color). In the cases of protein, tannin, oil, and steroids, it returned a bad impact. It is possible that the combination of these different phytochemicals is what accounts for the antimicrobial activities that was discovered in the plant extract of leaves. There is additional evidence that flavonoid may have a more significant positive health impact on humans. Ocimum septum is a perennial herb that has a long history of usage in traditional medicine as a therapy for a variety of conditions, including inflammation, tissue repair, toothache, antiseptics, carminatives, cough, albuterol, stomatitis, and several fungal infections. It's been determined that the presence of certain active elements with in extracts is responsible for the antibacterial action. It was discovered to have an aromatic odor, a taste that was somewhat pungent, and a silky texture. N. sativa sanctum was responsible for these findings. An analysis of the flavonoid potential of an extract from the leaves of O. sanctum, which uncovered both the existence and lack of alkaloids, polyphenols, and tannin components (Tables 1,2), demonstrated the organoleptic properties of ocimum temple.

Paper Identification



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The stems of the *Nucifera* plant were used in the manufacture of a leaf extracts of the plant's leaves. That leaves' extract was made in adequate amount by utilizing plain water. Inside this procedure, first 20 grams of powdered *n. sativa sanctum* foliage were put in such a 200 milliliter beaker, but then 100 milliliters of pure water was started pouring into the bucket after the introduction of water.. Its mixture was then decided to keep 24 hours at house temperature for nearly 22 hours for proper mixing but also complete explication of biomaterials to dissolve with in respective liquid. After that, this same extract was filtrated by using damp cloth preceded by Whatman neither. After all was said and done, the remnants were gathered up and employed in the test.



Figure: *ocimum sanctum* leaves.

The different treatments make employ a different extracts made from the leaves of both the *Nucifera* plant. Karma makes use of the freshly squeezed juice of Turmeric. This method helps to alleviate headaches as well as ailments that affect the head but also neck area.. Tulsi leaves have a nerving tonic effect on the body. Pimples, rosacea, and scarring may all be significantly reduced using the extract of tulsi leaves.

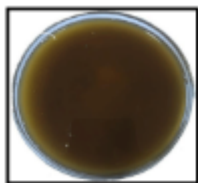


Figure: Aqueous extract of *ocimum sanctum* leaves.

The color, odor, texture, taste, and fracture of *n. sativa sanctum* (Thyme) were assessed as part of the sensory attributes analysis of the different extracts.

Study of phytochemical contents in the different extracts of *n. sativa sanctum* The crude extract of *n. sativa sanctum* was analyzed phytochemically to determine the presence or absence of flavonoid elements. The production of flavonoids from plants may be stimulated by various color spectrums of light, which emit either high or low levels of radiant energy. Reduced energy radiations primarily accepted by chemoreceptors, but high energy radioisotopes are taken by phytochrome with addition to carotene, flavins, and cryptochromes. Some phytochemical assays used for determining the presence of alkaloids, flavonoids, inhibitors, proteins, seed oil, glucose and tannins, Heart glycosides, terpenoids among flavonoids, and triterpenes.

Result

Following the Soxhlet with evaporation off 50 grams of dehydrated plant leaf in methanol, whiskey, and solution, the following yields of residual were obtained:

Table: Amount of plant extracts yield percentage in different solvents

Extract	Yield amount (%) W/W
Aqueous	5%
Methanol	8%
Ethanol	7%

Table 2 provides a summary of the results of an examination of phytochemicals found in extracts of *Ocimum sanctum* (Tulsi) leaves conducted in two different solvents and under aqueous conditions. Inside the course of the phytochemical analysis, many different types of bioactive compounds were discovered in the Latte leaf extract. When using a chemical agent, a greater quantity of extract may be obtained than when using water. Based on the findings of the research study, it was discovered that the herbs leaf contains a significant number of phenols, with percentages range from 1.6% through 7.6%. As a direct consequence of this, the amounts of alkaloids and flavonoids found in the substance varied from 0.91 through 1.28 as well as 1.56 through 2.24 correspondingly.

Table: Qualitative phytochemical screening methanol extract of tulsi leaf

Phytochemicals	Aqueous extract	Methanol extract	Ethanol extract
Protein	-	-	-
Carbohydrate	-	+	+
Phenol	+	+	-
Tannin	-	+	+
Flavonoid	+	+	+
Saponin	-	+	+
Glycosides	+	+	+
Steroid	-	-	-
Terpenoid	-	+	+
Alkaloid	+	+	+
Anthraquinone	-	-	-
Fixed oils and fatty acid	-	+	-
Test for lactones	-	-	-

“+”present, “-” absent

Table: Percentage of total phenolic, alkaloid and flavonoid contents in plant extract

Extract	Phenolic	Alkaloid	Flavanoid
Aqueous	1.61±0.56	0.91±0.66	1.56±0.64
Methanol	7.61±0.55	1.28±0.03	2.24±1.02
Ethanol	4.61±0.56	0.94±0.58	1.91±0.56

Each value is the average of three analysis and ± standard deviation.

Table: Chemical constituents and the activity of some of the phytocomponents of *Ocimum sanctum*

Sl. No	Retention time (unit?)	Name of the compounds	Molecular weight	Molecular formula	Activity**
1.	7.20	Eugenol	164	C ₁₀ H ₁₂ O ₂	Anti-inflammatory, antioxidant, anticancer, Acaricide, Antibacterial, Antispasmodic, Antiviral, Insecticide
2.	7.70	α -Farnesene	93	C ₁₅ H ₂₄	Acaricide, allergenic, analgesic, anaesthetic, antibacterial, anti-inflammatory, antiedemic, antioxidant, antiviral, antitumor, antiulcer
3.	7.50	Benzene, 1, 2-dimethoxy-4-(1-propenyl)	178	C ₁₁ H ₁₄ O ₂	Insect-attractant, perfumery, flavour antibacterial, nematicide
4.	13.36	Cyclohexane, 1,2,4-triethenyl	162	C ₁₂ H ₁₈	Antibacterial, anti-inflammatory, antiedemic, antispasmodic

**Source: Dr. Duke's phytochemical and ethnobotanical database (online database)

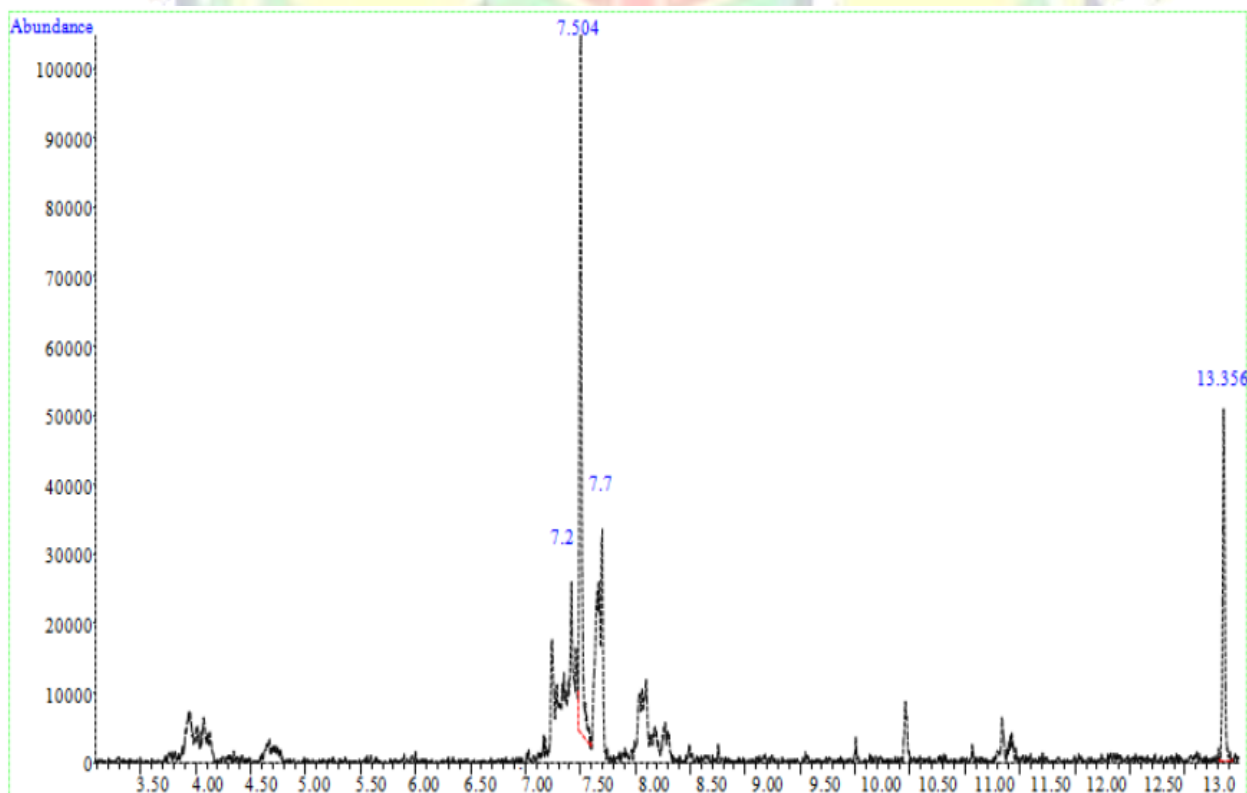


Fig.: GC- MS chromatogram of the methanolic extract of the leaves of *Ocimum sanctum*

Discussion

Ocimum sanctum contains several different qualities, including those that are anti-anxiety, anti-inflammatory, generally pro, analgesic, antifungal, immunomodulatory, diabetic, hypotensive, antihyperlipidemic, and reactive. Eugenol, also known as 1-hydroxy-2-methoxy-4-allylbenzene, is one of the active ingredients that may be found in o. enzymes have been identified as playing a significant role in the medicinal uses. This plant has a wide variety of qualities, including those that are anti-anxiety, generally pro, analgesic, antibacterial, immunomodulatory, hypoglycemic, hypoglycaemic, cardioprotective, and antioxidants. Eugenol, also known as 1-hydroxy-2-methoxy-4-allylbenzene, is one of the active components that O has. enzymes have been identified as playing a significant role in the therapeutic properties.

The research indicates that tulsi leaf extract contains a variety of secondary metabolites, including glucose, tannin, flavonoids, terpenoids, glycoside, cotyledon, fatty acid oxidation, and phenol. These organic compounds were discovered in the research. The foliage of Curcuma include phenolic compounds that are moisture as well as a variety of other elements that may work as a perfect addition. Some of these ingredients include eugenol, eucalyptol, and caryophyllene. Phenolics have been shown to have cardiodepressant, antihypertensive, and antihyperlipidemic effects. This same phytoconstituents of plants, including alkaloids, human growth hormone, flavanoids, tannins, anthraquinone, and a variety of aromatic hydrocarbons, serve as either a protective mechanism against poaching by many microbial, insects, and some other herbivores. Glycosides could really function as cardiostimulants through cases of cardiogenic shock. Other bioactive components of plants include flavonoids, tannins, phenolic compounds, and numerous numerous different aromatic (Sood notamment al., 2005). Catechins contain characteristics that prevent diarrhea and promote blood clotting. The antioxidant and antitumor activity effects of flavanoids are entirely due to their composition. According to Murphy et al., 1999 but also Kumar et al., 2003, antimicrobial elements of plants include alkaloids, polyphenols, flavanoids, and terpenoids. These antimicrobial principles are really the defense mechanisms that plants use against pathogens.

GC-MS calibration curve of both the methanol extracts of Curcuma exhibited four significant peaks (Figure.1), which have been recognized after comparing the spectral data with the collection of such department of biology at DU. This indicates that there are four phytocomponents included in your extract.. This was found that the extract mostly consisted of Eugenol (also known as 2-Methoxy-4-(2-propenyl) hydroxy), Benzidine, 1, 2-dimethoxy-4-(2-propenyl) - (also known as Users believe Isoeugenol), - Farnesene, while Xylene, 1, 2, 4-

triethenyl. - Farnesene had also been found to be present Table No. 1 contains a listing of the phytonutrients that are responsible for the therapeutic effect that the vine leaves have. (Benzyl) has been shown to possess antibacterial effect (Kurita et men., 1981), nematocidal activity (Katz et al., 2003), and antiproliferative activity (Katsumi, 1987). Flavonoid has been shown to exhibit antimycotic.

O extract made from the leaves Sanctuary had an effect not only on specific but also on non-specific inflammatory cells, in addition to influencing immune function against fungus and bacteria invasion . It had an effect on the antibody response as well as the activity of neutrophils. Experimentation has demonstrated that an extracts of Curcuma made with methanol has had an anticancer impact due to its ability to suppress the creation of nitrogen oxide.. [Citation needed] . Fishing may benefit from the usage of medicinal plants since these plants are sources of antibacterial agents. The essence of *O. sativus* was used to produce *Macrognathus pancalus*. It was discovered that sanctum might improve antibody responses . Tulsi, also known as *Ocimum sanctum*, is a plant whose leaves have antibacterial properties that have been shown to be effective against three pathogenic strains: *Escherichia coli*, Bacterial infections, and *A. niger*. (Subramanian and al.,2014). The anti-inflammatory, analgesia, antipyretic, and antibacterial properties of tulsi oil were shown to be substantial. Memory boosting, antifertility, anticataract, hold the substantial market share, antiulcer, hypoglycaemic, antiarthritic, anti-amnesic, comparable, anticataract, neuroprotective, and no tropic action are some of the other benefits that have been attributed to this compound (Rajesh et al., 2013). Because of its ability to improve step-down duration and suppress acetyl cholinesterase, methanolic extracts is frequently utilized in the management of cognitive problems. *Ocimum septum* has a long history of use in several traditional medicinal practices. Therefore, phytochemicals derived from such a plant have the potential to be employed in the treatment of a wide range of conditions that affect people. The plants are relatively inexpensive, readily accessible in vast quantities all over the world and risk-free for living creatures, the ecosystem, and also the consumers; as a result, they are of enormous benefit to the known organisms.

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