

A Review on Medicinal And Functional Values of Thyme (Thymus Vulgaris)

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Abstract- In recent days customer demands will increase for food that contains nutrients and herbs. Herbs are flowering plants whose stems grow above and are not woody. Have weak and soft stem. They are plants that are known for medicinal value, flower sent, etc... Herbal medicines are derived from herbs that give therapeutic effects. Thyme is a aroma herb with small leaves. Thyme is otherwise called garden thyme, French thyme, mother of thyme, or red thyme and its geographical source- Greece, Italy, Spain, mainly cultivated in France and USA and its characters likes, an aromatic perineal shrub about 20 to 40 cm in height with greyish brown to the purple-brown lignified twisted stem. Leaves are 3-10×3mm in size, the lamina is tough, greyish green in colour, and pubescent on the lower surface. Thyme contains 1.0-2.5 % of volatile oil, flavonoids, caffeic acid, labiatic acid, resins, and tannins. The volatile oil contains mainly thymol 20-80% carvacrol, terpineol, and linalool. It is used as an expectorant, antispasmodic and carminative. Thymol possesses antifungal, antibacterial, and antihelmintic properties. Thymol is counter-irritant. Thyme oil is used In cough syrup, liniments, lotions, and mouthwashes

Keywords- Thymus, herbal, vitamins ,bacteria biological, antioxidants, antimicrobial

I. INTRODUCTION

Pharmacognosy scientific study of the structural physical, chemical and sensory characters of drug from plants, vegetables and mineral source. Undoubtely plants have many molecules which have yet to be discovered. The term herb has originated from the latin word “:herba”. Herb is any crude plant material or product like leaves, flowers, fruits, seeds, stem, wood, bark, root, rizhomes or other plant part that may be entire fragmented or powder. The herbal medicines are defined as the herbal preparation and finish herbal products. Which contains one or more herbal substances and they obtained by the process of extraction, distillation, purification, concentration. In ancient indian system of medicines Ayurveda, Siddha, Unnai, Homeopathy is one of the most noted systems of medicines in the world. The novel drug delivery system in herbal drug technology is recently developed as Phytosomes or Herbosomes

II. DESCRIPTION OF THE PLANT

Thyme is a small perennial shrub that typically reaches 40 cm in height and has a semi-evergreen ground cover. and moral behaviour . Thymus vulgaris L. is depicted in. With time, the stems turn woody .Leaves of thyme are particularly small, often 2.5 to 5 mm long, and they vary greatly in shape and size. Depending on the variety, each species has a different type of hair covering. A very distinctively different fragrance. The leaves of T vulgaris are oval to rectangle in shape and have rather squishy aerial parts utilised to produce volatile oils, primarily through steam distillation. It is used for cooking in the modern and dried herb market



Fig.1



Fig.2

Thyme grows in conditions that range from mild to hot, dry, and warm, as well as areas where the plants don't appear to be shaded. To remove the leaves from the dried product, it must be treated.

in order to remove dirt and provide a consistent product, stems were sieved. goods. There are many methods, ranging from the sun to elegant dryers. The the use of sun-drying techniques results in poor quality of the flammable fuel Artificial drying techniques enable better management. quality of the goods. Thyme should be dried at not more than higher than 40°C to reduce taste loss from volatilization of volatile oil, and to maintain a respectable fresh colour

III. CLASSIFICATION

Kingdom	: Plantae
Subkingdom	: Tracheobionta
Super division	: Spermatophyta
Division	: Magnoliophyta
Class	: Magnoliopsida
Subclass	: Asteridae
Order	: Lamiales
Family	: Lamiaceae
Genus	: Thymus L.
Species	: Thymus vulgaris

IV. MEDICINAL USES OF THYME

Many diseases have been treated with chemical medications, however due to their negative side effects and the development of germs and viruses that are resistant to them, In addition to their high price in terms of money and other things drawn the interest of scientists and researchers to the due to their antiviral, antibacterial, and antifungal activities, medicinal herbs are important. result of the essential oil produced by the secondary plant's metabolism , Previous research showed that fresh thyme has lots of antioxidants and 29 active ingredients, particularly carvacrol (32%). And For this reason, thymol (30%) is frequently used in traditional medication for several ailments, including gastrointestinal conditions, breathing issues such as asthma, cystic fibrosis, bronchitis, etc

V. PRELIMINARY TEST FOR *THYMUS VULGARIS*.

Table .1

s.no	Secondary metabolites	Test	Present
1	Alkaloids	Mayers test	+

2	Phenolic compounds	Ferric chloride	+
3	Flavonoids	Shinoda test	+
4	Tannins	Fecl3 test	+
5	Terpenoids	Lieberman burhard	+
6	Saponins	Forthing test	+
7	Cardiac glycosides	Keller killiani test	-

VI. NUTRATIVE VALUE PER 100G OF FRESH THYME LEAVES

Table .2

Principle	Nutrition value	Percentage
Niacin	1.824 mg	11%
Pyridoxine	0.348 mg	27%
Electrolytes Sodium	9 mg	0.5%
Minerals Calcium	405 mg	40.5%
Manganese	106 mg	15%
Zinc	1.81 mg	16.5%
Magnesium	1.719 mg	15%

1.Vitamins

Vitamins are also abundant in thyme. Vitamins A and C are particularly abundant. An antioxidant is vitamin A essential for preserving healthy skin and mucous membranes, in addition to good eyesight. Vitamin C provides immunity to infectious diseases. and combats damaging, inflammatory free radicals. It is a good source of Vitamin B6, which is part of the B-complex. or pyridoxine, a 100 grames serving of which provides around 0.35 mg or 27% of the vitamin's suggested daily intake. This Niacin serves as a GABA-maintaining agent in the brain. as an anti-stress tool. This herb also contains the following vitamins Folic acid, vitamin K, and vitamin E .^[6]

2. Antioxidants

Zea-xanthin, pigenin, lutein, luteolin, and thymonin are only a few of the flavonoid phenolic antioxidants that are abundant in thyme. The total ORAC (Oxygen Radical

Absorbance Capacity) of fresh thyme is 27426 mol TE/100 grammes.

3. Flammable oils

One of the most important essential oils present in thyme, thymol is well-known for its antifungal and antibacterial properties. Also, it contains other volatile oils like borneol, geraneol, and carvacol .

4. Minerals

Minerals that are essential for optimum health are present in thyme. Potassium, calcium, iron, manganese, magnesium, and selenium are all abundant in its leaves. Potassium regulates heart rate and blood pressure since it is a crucial component of cells and bodily fluids. Superoxide dismutase, an antioxidant enzyme, requires manganese as a co-factor. Red blood cell production involves iron.

5. Antimicrobial properties

The essential oils derived from *Thymus vulgaris* L. harvested at 4 biological process stages were assessed for their biological activity and chemical components. The inhibitory effects of the thyme volatile oils against 6 strains of gram-positive bacteria and 9 strains of gram-negative bacteria were examined. The detection duration was chosen as the criterion for describing and measuring the antibacterial activity of the thyme oils, and the bio impedance approach was used to determine the bactericidal activity of the essential oils. The technique of plate counting was employed to investigate the inhibitory effect of direct exposure. The studied bacteria were significantly inhibited by all of the Thyme essential oils that were investigated. This activity against gram-positive bacteria was more pronounced.

The oil extracted from the mature thyme blossom was the most successful at inhibiting the growth of the microorganism species tested. The studied oils were also found to have effective antibacterial action upon direct contact, which appeared to be particularly focused on the gram-negative microbe. In contrast to the majority of the strains, several species were able to regain at least 50% of their metabolic function after coming into contact with the inhibitor. and most of the strains were shown to have been inactivated almost complete.

5. Anti bacterial activity

The biological activity and chemical composition of the essential oils extracted from *Thymus vulgaris* L. gathered

at four different stages of the biological process were assessed. The volatile oils from thyme were tested for their ability to inhibit 9 gram-negative bacterial strains and 6 gram-positive bacterial strains. The bioimpedance approach was selected for determining the essential oils' ability to fight bacteria, as well as the selected parameter for describing and measuring the antibacterial. The time of detection for the Thyme oils was. The dish Utilizing a counting strategy, the inhibitory impact of direct contact Every essential oil of thyme that was tested has a a strong bacteriostatic effect against the microorganisms tested. This effect against gram-positive bacteria was more strong. The oil from the mature thyme plant was the most effective at inhibiting the growth of the different types of microorganisms. The studied oils were also found to have effective antibacterial action upon direct contact, which appeared to be particularly focused on the gram-negative microbe. When in contact with the inhibitor, some species were able to regain at least 50% of their metabolic function, but the majority of the strains were found to have nearly totally stopped functioning.

VII. CONCLUSION

Herbs are flowering plants whose stems grow above and are not woody. Pharmacognosy. scientific study of the structural physical, chemical and sensory characters of drug from plants, vegetables and mineral source. Undoubtedly plants have many molecules which have yet to be discovered. Depending on the variety, each species has a different type of hair covering. It is used for cooking in the modern and dried herb market. Thyme grows in conditions that range from mild to hot, dry, and warm, as well as areas where the plants don't appear to be shaded. To remove the leaves from the dried product, it must be treated. in order to remove dirt and provide a consistent product, stems were sieved. There are many methods, ranging from the sun to elegant dryers. result of the essential oil produced by the secondary plant's metabolism , Previous research showed that fresh thyme has lots of antioxidants and 29 active ingredients, particularly carvacrol (32%). And For this reason, thymol (30%) is frequently used in traditional medication for several ailments, including gastrointestinal conditions, breathing issues such as asthma, cystic fibrosis, bronchitis, etc. Preliminary test for *thymus vulgaris*. It is a good source of Vitamin B6, which is part of the B-complex. This Niacin serves as a GABA-maintaining agent in the brain. Zea-xanthin, pigenin, lutein, luteolin, and thymonin are only a few of the flavonoids phenolic antioxidants that are abundant in thyme. The total ORAC (Oxygen Radical Absorbance Capacity) of fresh thyme is 27426 mol TE/100 grams. Flammable oils, One of the most important essential oils present in thyme, thymol is well-known for its antifungal and antibacterial properties. Also, it

contains other volatile oils like borneol, geraneol, and carvacol. Minerals that are essential for optimum health are present in thyme. The essential oils derived from *Thymus vulgaris* L. The oil extracted from the mature thyme blossom was the most successful at inhibiting the growth of the microorganism species tested. and most of the strains were shown to have been inactivated almost complete. The biological activity and chemical composition of the essential oils extracted from *Thymus vulgaris* L. gathered at four different stages of the biological process were assessed.

REFERENCES

- [1] Nanasombat S, Thonglong J, Jitlakha J. Formulation and characterization of novel functional beverages with antioxidant and anti-acetylcholinesterase activities. *Functional Foods in Health and Disease*. 2015; 5(1): 1-16
- [2] . Mohamed A, Mohamed A, Omar AA. A study to find thyme oil dose that kill 50% of mice and minimal dose that kill all mice and maximum nonlethal Dose. *Nature and Science*. 2013; 11(12): 52-53.
- [3] Sharangi AB, Guha S. Wonders of leafy spices: Medicinal properties ensuring Human Health. *Science International*. 2013; 312-317, DOI: 10.17311/ sciintl.2013.312.317.
- [4] Aksel B. Bioactive compounds in plants – benefits and risks for man and animals. The Norwegian Academy of Science and Letters, Oslo. 13 – 14 November 2008.
- [5] Ocana A, Reglero G. Effects of Thyme extract oils (from *Thymus vulgaris*, *Thymuszygis*, and *Thymus hyemalis*) on cytokine production and gene expression of oxLDL-Stimulated THP-1- Macrophages. *Journal of Obesity*. 2012; 1-11, Doi:10.1155/2012/104706.
- [6] El-Nekeety AA, Mohamed SR, Hathout AS, Hassan NS, Aly SE, Wahhab MA. Antioxidant properties of *Thymus vulgaris* oil against aflatoxin- induce oxidative stress in male rats. *Toxicon*. 2011; 57: 984-991.
- [7] Yamunadevi Mariswamy, Wesely Edward Gnaraj, Johnson M. Chromatographic finger print analysis of steroids in *Aerva lanata* L. by HPTLC technique. *Asian Pacific Journal of Tropical Biomedicine*. 2011, 428-433.
- [8] Wagner H, Baldt S, Zgainski EM. *Plant drug analysis*. Berlin: Springer. 1996.
- [9] Newman DJ, Cragg GM. Natural products as sources of new drugs over the last 25 years. *J. Natprod*. 2007; 70:461-77
- [10] Al-Fatimi, M., Wurster, M., Schröder, G., Lindequist, U. In vitro Antimicrobial, Cytotoxic and Radical Scavenging Activities and Chemical Constituents of the Endemic *Thymus laevigatus* (Vahl) *Rec. Nat. Prod*. 2010; 4(1): 49-63.
- [11] Al-Dajawi, A. *Encyclopedia of Medicinal and Aromatic Plants*. The second book. Madbouly Library- Cairo. 1996; 336 p.
- [12] Mohamed, A., Omar, A. J. N. *Science*. A study to find thyme oil dose that kill 50% of mice and minimal dose that kill all mice and maximum non-lethal dose. *Nat Sci*. 2013; 11(12): 52-53.
- [13] Murata T, Miyase T, Muregi FW, Naoshima-Ishibashi Y, Umehara K, Warashina T et al. Antiplasmodial triterpenoid from *Ekebergia capensis*. *J. Plant Nat. Prod*. 2008; 71(2):167-174.
- [14] Padilha HKM, Pereira EDS, Munhoz PC. Genetic variability for synthesis of bioactive compounds in peppers (*Capsicum annuum*) from Brazil. *Food Science and Technology Campinas*. 2015; 35(3):516-523
- [15] Alireza Komaki, Faeghe Hoseini, Siamak Shahidi, Negar Baharlouei. Study of the effect of extract of *Thymus vulgaris* on anxiety in male rats. *J. Traditional and Complementary Medicine*. 2016; 6(3):257-261.
- [16] Kholkhal F, Lazouni HA, Bendahou M, Boublenza I, Chabane SD, Chaouch T. Phytochemical study and evaluation of the antioxidant activity of *Thymus ciliatus* ssp. *coloratus*. *Afrique Science*. 2013; 09(1):151-158.
- [17] Dorman HJD, Deans SG. Antimicrobial agents from plants: antibacterial activity of plant volatile oils. *Journal of Applied Microbiology*. 2000; 88(2): 308-316.
- [18] Rota MC, Herrera A, Martínez RM, Sotomayor JA, Jordán MJ. Antimicrobial activity and chemical composition of *Thymus vulgaris*, *Thymus zygis* and *Thymus hyemalis* essential oils. *Food Control*. 2008; 19(7): 681-687.
- [19] Gill AO, Delaquis P, Russo P, Holley RA. Evaluation of antilisterial action of cilantro oil on vacuum packed ham. *International Journal of Food Microbiology*. 2002; 73(1): 83-92.
- [20] Dipak P. Role of antioxidants in stability of edible oil. *Journal homepage*. 2013; 1(1): 68-7
- [21] ESCOP Monographs: The scientific foundation for herbal medicinal products. The European Scientific Cooperative on Phytotherapy in collaboration with Georg Thieme. 2007.