

Medicinal Flora - A Comprehensive Review On The Biological Aspects Of Thymus Vulgaris

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Abstract : Medicinal vegetation has performed important position inside the improvement of human way of life. Many current medicines are produced in a roundabout way from flora. this article targets to provide entire review on the pharmacological components of thyme. Thyme is a aromatic plant with approximately a hundred species in the international. it is native to the areas of Northern and principal Europe. it's miles perennial shrub belongs to the Lamiaceae own family. Thyme blanketed critical oils including phenol, thymol, carvacrol, glucosides, flavonoids, borneol, linalool, alcohol, rosmarinic acid, saponins, tannins and terpenoids and many others. these parts suggests the pharmacological activities like antimicrobial, antioxidative, anthelmintic, antiseptic, antitpasmodic and many others. based totally on numerous studies and studies articles this evaluate may additionally offer the assembled statistics which will confirm the pharmacological price of thyme.

keyword : Thymus serphyllum, Thymus vulgaris, antioxidative, antimicrobial, crucial oils.

Introduction

Thyme is an medicinal fragrant plant its belonging to the family "Lamiaceae" and its scientific call " Thymus Vulgaris" and its indian call Banajwain in Hindi, thyme in Kannada and its chromosome no is two $n= 30$, Thyme is one of the important ecu culinary herbs. Thyme is normally called " commonplace thyme" or " lawn thyme" . Medicinally leaves are passes laxative stomachic and Tonic houses precise for kidney and eye and are blood purifies. thymes has herb additionally has insect repellent houses . Thyme has been used antiseptic, antimicrobial, medicine, astringent, anthelmintic, remedy etc . Thyme is useful in instances of hookworms, gram-effective and gram-negative bacterium, fungi and yeasts as well as Candida albicans. Thyme enhance liver functioning, and act as an appetite stimulant. it is going to be used in remedy bronchial and urinary infections. the main factor of the volatile oil of thyme, thymol, is active in opposition to cocci bacterial it is used for pores and skin remedy like oily skin, acne, dermatitis, pores and skin condition etc and thuyanol for antiviral properties are used. phenol chemical compound carvacrol that have antioxidative, antimicrobial, medicinal drug, antitussive, antispasmodic, and antibacterial outcomes.



Thyme grows wild in almost all the international locations which include Europe, Australia and North Asia. In India it's miles determined in western temperate Himalayas from Kashmir tu kumaon between altitudes of 1525 cm - 4000 m . it is now cultivated in France, Germany, Spain , Italy, Greece and North Africa, Canada and america. it could be grown each in hills and the plant at an elevation of 1500- 4000 m MSL .The seeds may be sown in nursery during April. past due summer time is the time for transplanting the seeding or planting rooted cuttings.

SYNONYMS / Common NAMES

common garden thyme, English thyme, farigola, folia thymi, French thyme, lawn thyme, Gartenthymian, herba thymi, herba timi, Labiatae (circle of relatives), Lamiaceae (family), mom of thyme, pink thyme, rubbed thyme, serpyllium, shepherd's thyme, Spanish thyme, ten, thick leaf thyme, thyme aetheroleum, thyme oil, Thymian, Thymus serpyllum, Thymus zygis L., wild thyme, white thyme oil.

Description

Genus call-Thymus

Plant kind- Herb, Perennial

Odour-its spicy aromatic and distinctly leathery light- solar

Flower shade -red, crimson, White

Foliage coloration - Blue or green Season features -

spring bloom

unique capabilities - draws Birds, fragrance, excellent for containers

Characters- strong fragrant odour

Propagation - department, Layering, seed, stem, slicing

Thyme isn't always simply an herb to grow for including flavor to meals, may additionally upload masses of shade and texture in your garden. This difficult and rugged perennial frequently forms dense mats of foliage which are crowned with attractive blossoms. There also are some top notch low-growing types that may be planted between rocks and paths, where they'll release their delightful perfume while brushed beyond. a few sorts may even be used as a lawn alternative. Many chefs plant thyme close to the kitchen so as to easily snip a stem or two when cooking, and you may even develop them indoors in a sunny window to experience the taste yearspherical.they're important Medicinal plant. This plant has more than one and quick, fragrant leaves, branches and direct roots and woody shoots to a height of 10 to 30 cm. The shoots are covered with great and small leaves like Rhomboid.

Thyme leaves are gray and very small. The flora are small and white to crimson with 5 sepals that are main to a element tube. Thyme seeds are round fashioned, small and black. Thyme is reproduced by means of seed, cuttings or department of the vegetation .Wild state of this plant is thick timber and grows on dry slopes and between the boulders of various elements of the Mediterranean climate. Thyme has critical oil and The most vital component is thymol".Biosynthesis and accumulation crucial oil happens in glandular fine. Thyme species do first-rate in coarse, hard soils that may be flawed for several opportunity vegetation.The unstable oil content material of the dried herb is a essential trouble contributory to the flavour depth. entire thyme leaves need to contain not less than zero.five% crucial oil, that equals five ml/kg dried herb, and floor thyme ought to contain at the very least 0.2% volatile oil to fulfill the desires. Thyme unstable oil have to be hold on in a very cool, dry area till it's used.

Cultivation

Propagation of thyme may be carried out by using seeds and vegetative with the aid of the division of roots or by way of reducing or with the aid of layering of the side shoots in March and April. commonly it takes upto four weeks to germinate. Thyme herb could be very tough to develop form seeds ,so its takes long term to develop. The seeds are sown immediately in rows. Seedling grown interior can be transplanted. it is properly prepared nursery beds in desirable soils. this will also reason choppy germination of the seeds . suggest to the plant the seeds or cutting interior 7 to 10 weeks earlier than the last spring frost. The pleasant manner to thyme herb growing is to propagate form roots divisions. cutting isn't essential.Roots must be divided in March and April the use of plant three or four years antique. right soil is desired to the nursery, due to the fact the seeding are very small and remain inconspicuous for several weeks after germination.

Taxonomical Classificarion

Kingdom: Plantae

Subkingdom: Tracheobionta

Division: Magnoliophyta

Superdivision: Spermatophyta

Class: Magnoliopsida

Subclass: Asteridae

Order: Lamiales

Family: Lamiaceae Genus: Thymus L.

Species: Thymus vulgaris L.

Makes use of

- ❖ Administrated thyme with the aid of the oral course reduces the cough as well as upper breathing tract infections or commonplace bloodless.
- ❖ Thyme increases the production of sputum in adults and little ones.
- ❖ the usage of the critical oils of thyme with combos, improve the hair increase.
- ❖ Taking thyme oil with combinations of other oils is enhancing the motion problems in youngsters with dyspraxia.
- ❖ Also used to treat ear infections, swelling of the tonsils, stopping bedwetting, sore throat horrific breath.

Microscopic traits

The powder of both species is greyish-green or greenish-brown. observe below a microscope the use of chloral hydrate answer. reduce to a powder. The epidermises of the leaves have cells with anticlinal partitions which are sinuous and beaded and the stomata are diacytic ; numerous secretory trichomes made up of 12 secretory cells, the cuticle of which is commonly raised by means of the secretion to shape a globular to ovoid bladder-like masking; the glandular trichomes have a unicellular stalk and a globular to ovoid head; the masking trichomes of the adaxial surface are common to each species; they've warty partitions and are shaped as pointed

enamel; the warty protecting trichomes of the abaxial floor are of many sorts: unicellular, directly or slightly curved, and bicellular or tricellular, and frequently elbow-fashioned; bicellular or tricellular, greater or much less straight. Fragments of calyx are protected by way of numerous, uniseriate trichomes and a weakly striated cuticle. Fragments of the several thick bundles of fibres from the principle veins and from fragments of stems.

Macroscopic traits

The leaf of *Thymus* is commonly 4 mm to 12 mm lengthy and up to 3 mm huge, with a very short petiole. The lamina is tough, entire, lanceolate to ovate, included on both surfaces with the aid of a gray or greenish-gray indumentum; the rims are markedly rolled up in the direction of the abaxial surface. The midrib is depressed on the adaxial surface and may be very prominent at the abaxial surface. The calyx is green, regularly with violet spots and is tubular; at the end are 2 lips of which the top one is bent back and on the give up has three lobes, the lower is longer and has 2 hairy tooth. After flowering, the calyx tube is closed by way of a crown of long, stiff hairs. The corolla, approximately two times as long as the calyx, is normally brownish in the dry kingdom and is barely bilabiate

Extraction Parameters

in this study, the particle size became controlled as steady since the 420-500µm is choicest for extraction, even as smaller debris may also become slimy at some point of extraction and create trouble during filtration .

Thyme Extract instruction

Samples of about 10g of dried, milled, powdered and sieved thyme were extracted with 100mL of solvent. The extraction process became performed the use of a magnetic stirrer with warmth plate. After extraction, the samples have been filtered the use of one hundred twenty five mm diameter filter paper. The solvent ethanol turned into separated from extracts the use of a rotary evaporator (Buchi Rota-vapor R- 124, Switzerland) underneath vacuum at forty five°C after which weighed to degree thyme extraction yield. The focused thyme extract changed into stored at 18°C until its antioxidant capability was determined. while, aqueous extract of thyme turned into further freeze dried for antioxidant activity evaluation.

Chemical Composition

Thyme is a supply rich in bioactive compound. The herb consists of chemical elements inclusive of thymol, cymene, carvacrol, linalool, terpinene, caryophyllene, 1, three-Octadiene, 1, 7-Octadiene, 2, four Dimethyl-2, four-heptadiene, Camphene, Sabinene, Myrcene, Limonene, B-caryophyllene. Carvacrol, Carvacrol acetate, B-Caryophyllene, Calamenene, Cadinene, Borneol, Cimenene, Mentha-3, 8-diene, Myrcene, and para-Menthene-1.and so forth...

The critical oil from *T. vulgaris* confirmed a excessive content material of oxygenated monoterpenes (fifty six.fifty three%) and occasional contents of monoterpene hydrocarbons (28.69%), sesquiterpene hydrocarbons (5.04%) and oxygenated sesquiterpenes (1.eighty four%) [8]. The primary compound a few of the vital oil additives was thymol (51.34%) while the amount of all other additives of the oil become less than 19%.

Thyme includes monoterpene phenols, which include carvacrol (iso-propyl-ortho-cresol; zero.four–20.6%), thymol (2isopropyl-five-methylphenol or iso-propylmeta-cresol; C₁₀H₁₄O; 10–64%) and p-cymene (9.1–22.2%), and different monoterpenes, together with α-pinene (0.nine–6.6%), 1,eight-cineole (0.2–14.2%), camphor (0– 7.three%), linalool (2.2–four.8%) and borneol (zero.6–7.five%) [16].

The composition of *Thymus* essential oil is commonly a combination Thymol presents thyme oil with its olfactory peculiarities. relying at the place of foundation. the important compounds in thyme, the content of thymol in *Thymus zygis* and *Thymus vulgaris* amounts to 22.3–forty three.three%and 38.1 %, respectively. similarly, carvacrol debts for 2.3%, at the side of other prevailing compounds together with pcymene (29.1%), g-terpinene (five.2%) and linalool (3.7%) [20].

Identification test

1. thin-layer chromatography (TLC)-

check solution- 1.0 g of the powdered drug upload 5 ml of methylene chloride R and shake for 3 min, filter via about 2 g of anhydrous sodium sulphate R. *Reference solution-Dissolve five mg of thymol R and 10 µl of carvacrol R in 10 ml of methylene chloride R. Plate: TLC silica gel F254 plate R. cellular phase: methylene chloride R.

application: 20 µl, as bands. development: over a course of 15 cm.

Drying: in air.

2. important oil -

Use 30.zero g of the drug, a one thousand ml round-bottomed flash and 400 ml of water R because the distillation liquid. Distil at a rate of 2-three ml/min for 2 h without xylene R inside the graduated tube.

Pharmacological Properties

1. Antimicrobial activity-

Many researchers characteristic the high concentration of carvacrol in the essential oils of thymus genus species for his or her antimicrobial sports.It additionally indicates biocidal homes. Ethanol and aqueous extracts of *T.serpyllum* display limit activity in opposition to *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli* and *Pseudomonas aeruginosa*.

on the increase of the bacterial species like *Proteus mirabilis*, *E.coli*, *Salmonella choleraesuis*, *Staphylococcus aureus* and *Enterococcus*, Faecalis essential oils of thyme reveled the finest antimicrobial hobby.

Wild thyme crucial oil has bactericidal effect but no longer bacteriostatic results on those micro organism. in advance finding that the thymol is a great antimicrobial agent.

2. Antioxidant activity-

thyme is a considerable supply of Flavonoid phenolic antioxidants together with zea-xanthin, pigenin, lutein, luteolin f thymonin. fresh thyme own of a complete oxygen radical absorbance potential of 27426-µmol TE/ one hundred grams. *T Serphyllum* crucial

oils display properly radical Scavenging interest than thymus linearis important oil. Thymol is principal issue of essential oils of thyme which validated higher antioxidant activity.

3. Antitumor & cytotoxic interest -

The elements of thyme important oil along with carvacrol has essential effects on cytotoxic effects on tumour cells. one of the important elements which include thymol within the essential oils of *T-serpyllum*, *T. algeriensis* and *T.vulgaris* can be involved in stimulating the lively proliferation of pulpal fibroblasts. critical oil of *T· serpyllum* wellknownshows the finest antitumor activity. compounds remoted inclusive of carvacrol, thymol and thymoquinone are the essential additives of *T.serpyllum* vital oils that is cytotoxic to six cancer cellular. It suggests the firstclass anticancer hobby.

4. Anti-Inflammatory Effects:

Inhibition of prostaglandin synthesis by thymol and carvacrol and in vivo inhibition of mouse macrophages and complement activations.

Spasmolytic/Antitussive Effects:

Spasmolytic and antitussive activity thymol combine with carvacrol. In animal , flavonoids in thyme appear to relax tracheal and ileal smooth muscles inhibition of acetylcholine and histamine receptors, or calcium channel antagonis In vitro, thyme extract and volatile oil exert relaxing effects on tracheal and ileal smooth muscle by inhibit ing phasic contractions, and may depend on the concentration of flavone aglycones.

Conclusion

Thymus Vulgaris is an important medicinal plant has been used for centuries as spice, home remedy, drug, perfume and insecticide. Thyme has antihyperglycemic and antilipidemic effect, and kidney functions improvement, which may be helpful in the treatment of diabetes and other diabetic related complications. *Thymus Vulgaris* essential oil is one of the most commonly used essential oils in the food industry and in cosmetics as preservatives and antioxidants . Those chemical substances indicates diverse pharmacological activities along with antioxidant, antimicrobial, anthelmintic, antiseptic, entitist antiplasmodic etc.

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