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SACHET BAGS FORM OF VITEX NEGUNDO FOR PAIN RELIEVE POWDER

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ABSTRACT
Nir gundi (Vitex negundo) is an important medicinal plant found all over India. The plant contains numerous bioactive compounds. Therefore, almost all of its parts are used as traditional medicine. This review reveals a brief account of Vitex negundo and other ingredients such as lemongrass, lavender, neem and orange peel andits medicinal uses, phytochemical propertiesand therapeutic properties.[1]

INTRODUCTION TO POWDERS

Powder is a mixture of finely divided drug and / or chemicals in a dry form that may be intended for internal use (oral powders) or external use (topical or dusting powder). Powders are solid dosage form containing dry mixtures of finely divided drug substance (s) and excipients intended for internal or external use. Although the use of powders as a dosageform has been replaced largely by the use of tablets andcapsules in modern medicine, they represent one of the oldest dosage forms and present certain advantages that have led to their continued use as pharmaceutical dosage form.

CLASSIFICATION

Powders can be classified in various ways and these include

1. Classification based on use
2. Classification based on particle size and
3. Classification based on dispensing/ by the way they are presented to the user.

1. Classification of powders based onuse

Based on use, pharmaceutical powders can be classified as powders for internal use or powders for external use. These are briefly described as follow

1.1. Pharmaceutical powders for internal use

Pharmaceutical powders for internal use are preparations consisting of solid, loose, dry particles of varying degrees of fine particle size that contain one or more active substances, withor without excipients. Powders for internal use can be taken orally (e.g., Oral powders), administered through the nose as snuffs, or blown into a body cavity as an insufflation.

1.2. Pharmaceutical powders for external use

Topical powders also known as powders for cutaneous application or powders for external use are preparations consisting of solid, loose, dry particles of varying degrees of fineness. They contain one or more active substances, with or without excipients and, if necessary, appropriate colouringmatter. Powders for external use can be applied to compromised areas of the body. Highly sportive powders should not be used for topical powders that are to be applied to oozing wounds, as a hard crust may form.

2. Classification of powders based on particle size

After preparation powders are classified according to their particle size. In order to qualify the particle size of a given powder, the USP uses the following descriptive terms:

2.1. Very coarse (No. 8) powder: All particles pass through a No. 8 sieve (2.38 mm) and not more than 20% pass through a No. 60 sieve.

2.2. Coarse (No. 20) powder: All particles pass through a No. 20 sieve (0.84 mm) and not more than 40% pass through a No. 60 sieve.

2.3. Moderately coarse (No. 40) powder: All particles pass through a No. 40 sieve (0.42 mm) and not more than 40 % pass through a No. 80 sieve.

2.4. Fine (No. 60) powder: All particles pass through a No. 60 sieve (0.25 mm) and not more than 40% pass through a No. 100 sieve.

2.5. Very fine (No. 80) powder: All particles pass through a No. 80 sieve (0.18 mm). There is no limit to greater fineness.

3. Classification of powders based on dispensing

Pharmaceutical powders are classified based on dispensing or by the way they are presented to the user into bulk or divided powders.

3.1. Bulk powders
3.2. Divided powders
3.3. Topical powders
3.4. Insufflation powders
3.5. Powder for injection.[2]

INTRODUCTION TO SACHET BAGS

FIG: SACHET BAGS.

SACHETS are also known as **teabags**. Tea bags is a small porous bag or packet, typically containing tea leaves or the leaves of the herbs, which is immersed in water to steep and make an infusion.

Tea bags are commonly made of filter paper or food grade plastic occasionally of silk cloth or silk. Tea bag can be used as multiple times until there is no extraction is left.[3]

INTRODUCTION TO VITEX NEGUNDO

Vitex negundo is a traditional herb known for its medicinal properties in Unani, Ayurveda, Siddha, Chinese, Roman, and other traditional systems of medicine. Traditionally, it is used as anthelminthic, antitoxin, aphrodisiac, contraceptive, antimalarial, analgesic, anti-inflammatory, anti-asthmatic, vermifuge, etc. All parts of V. negundo contain a number of phytoconstituents like Alkaloids, fatty acids, flavonoids, glycosidic iridoids, lignans, phenols, steroids, tannins and di- and sesquiterpenes. Due to the presence of a variety of secondary metabolites, V. negundo is used in different types of diseases or disorders by traditional practitioners for the treatment of spermatorrhoea, stomach ache, asthma, cold, diarrhoea, indigestion, gallstone, hernia, eye disorders, rheumatism, irritable bladder and dysmenorrhea, headache, migraine, kwashiorkor, neck gland sores, tubercular neck swelling, reddened, arthritis, jaundice, urticaria, eczema and liver disorders. It is most widely used for curing disorders of the reproductive system like vital power, depression, frail erection without libido, self-contempt for sexual abuse, stool containing prostatic fluid, and testicle pain. It has recently been reported to have cytotoxic properties against various types of cancer cells.[4]

The plant is an aromatic, deciduous shrub grows all over India, in wastelands, mixed open forest, up to 1500 meters elevation. It is also found in Afghanistan, Pakistan, Sri Lanka, Thailand, Malaysia, Eastern Africa, China, and Madagascar. In India, it is cultivated as a hedge plant. The tree grows 2-4 meters in height, with quadrangular branches and thin grey bark, Assam Agricultural. The leaf stalk is long and 3-5 leaves grow at its tip. The leaves are petiolate, smooth, exstipulate, 4-10 cm long, hairy beneath, have a typical pungent odour. The flowers are small, bluish purple in colour, lanceolate, in panicles up to 30 cm long. The fruits are small, ovoid or obovoid, four seeded drupes, black when ripe.[5]

Plant Anatomy

- **Kingdom** - Plantae – Plants
- **Sub Kingdom** - Tracheobionta - Vascular plants
- **Super division** - Spermatophyta - Seed plant
- **Division** - Magnoliophyte – Flowering plant
- **Class** - Magnoliopsida - Dicotyledons
- **Subclass** - Asteridae
- **Order** - Lamiales
- **Family** - Verbenaceae
- **Genus** - Vitex Linn.
- **Species** - Vitex negundo Linn. (Chaste tree).[6]

Fig: Leaves of vitex negundo.

Fig: Vitex negundo.

PHYTOCHEMICAL CONSTITUENTS

Plant part	Class of secondary metabolites	Compound name
Leaves	Alkaloids	Nishindine
	Aliphatic alcohol	Linalool; n-hentriaconate; p-hydroxybenzoic acid
	Terpenes	Alpha-pine binene
	Diterpenes	Vitexilactone
	Sesquiterpenes	Viridiflorol; beta-caryophyllene
	Glycoside	Luteolin-7-glucoside; 5, 7-dihydroxy-2-(3,4-dihydroxyphenyl)-4Hchromen-4-one; 5-hydroxy-3,6,7-trimethoxy-2-(3, n-5,6,7,8,3',4',5' Heptamethyl
	Flavonoids	Flavone; corymb sin; vitexicarpin; 5-hydroxy 3,6,7,3' 4-pentamethoxy flavone; 5-O-desmethoxynobieletin flavone; 5,7 dihydroxy-6,4' dimethoxy flavanone; 5 hydroxy-7-4' dimethoxy flavone;7,8 dimethyl herbacetin-3-rhamnoside; casticin; artemitin; 4,4-dimethoxy trans -stilbene; gardenin A; gardenin B; 4,5-diethyl-3-ethoxy-pyro-flavone.
	Iridoid glycoside	Nishandaside; 2-p-hydroxybenzol mussacnosidic acid; negundoside; lagundinin; Aucubin; agnuside
	Steroids	Beta-sitosterone; beta-sitosterone acetate; stigmasterone
	Furanoeremophilane	Alpha -cedrene

THERAPEUTIC USES

- The root, fruit, flowers, leaves, and bark of Nir gundi have medicinal value and are used for medicinal purpose externally as well as internally.
- All compounds extracted from all the parts of the plant exhibited various bioactivities including anti-nociceptive, anti-inflammatory, anti-tumour, anti-oxidant, anti-androgenic, anti-osteoporotic, anti-cataract, hepatoprotective, anti-hyperglycaemic, insecticidal, anti-microbial activity.[8]
- It has been used for the treatment of chronic bronchitis.
- Nir gundi decoction is used for steam bath for arthritis, joint pains and sciatica. The dried leaves when smoked are said to relieve headache.
- Decoction of Nir gundi leaves is an effective gargle in stomatitis and sore throat. The tub-bath of the decoction of its leaves is rewarding in epididymis-orchitis and uterine inflammations. Casticin has been isolated from leaves which have antiproliferative and apoptotic activities.[9]
- Fresh leaves of V. negundo have anti-inflammatory and pain suppressing activities possibly mediated via PG synthesis inhibition, antihistamine (anti-itching), membrane stabilising and antioxidant activities.[10]
- Leaf extract of V. negundo exerts a protective effect on human liver cell i.e. CYP2E1-dependent CCl4 toxicity via inhibition of lipid peroxidation, followed by an improved intracellular calcium homeostasis and inhibition of Ca (2+)- dependent proteases.[11]

- Roots are used for joint ache, inflammations, flatulence, breathing problems, malaria and leprosy Roots are tonic, anodyne, febrifuge, Becchi, expectorant and diuretic. Flowers are used for diarrhoea, cholera, fever, haemorrhages, and cardiac disorder.
- Flowers are astringent and used in fever, diarrhoea and liver complaints. The dried fruits contain lignans, including a phenyl indene-type lignan, vitexdoin F (1), and three phenyl naphthalene-type lignans, vitexdoins G, H and I (2-4) having anti-inflammatory and anti-osteoporotic activities[12] And the bark is used in toothache.
- Vitex Negundo has shown promise as an effective bio-control agent against diseases and pests of cultivated plants. The extracts of leaves possess inhibitory, deterrent or lethal activity that cause disease and damage to other organisms.[13]
- The leaves are reported to possess pesticidal, antifungal and antibacterial properties. The leaf extract is used as grain preservation material to protect the pulses against insects.[14]
- Volatile oil possesses the antimicrobial properties due to presence of monoterpene constituents which exerts membrane damaging effects. Ursolic acid and botulinic acid are triterpenoids having pesticidal effect.[15]

OTHER INGREDIENTS

- **LEMONGRASS**

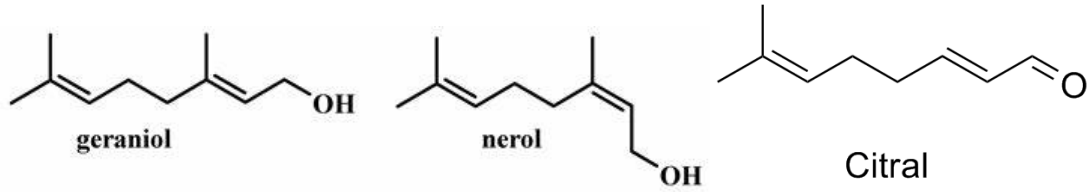
Lemon grass is a tall plant having enormous striped leaves with an uneven edge. It is known for its smoky, sweet, herbaceous and lemony fragrance. It grows in numerous parts of the tropical and sub-tropical South East Asia and Africa.[16]

BOTANICAL DESCRIPTION

- **Scientific name:** Cymbopogon citratus
- **Kingdom:** plantae: phylum tracheophyte
- **Subkingdom:** commelinidae
- **Division:** magnoliophyte
- **Class:** liliopsida
- **Order:** poales
- **Family:**poaceae
- **Genus:** Cymbopogon
- **Species:** Citratus.[17]

Chemical constituents: citral (mixture of geranial and nerol), isonerol, isogeranial, geraniol, geranyl acetate, citronellal, citronellol, germacrene-D, and elemol.[18]

THERAPEUTIC PROPERTIES



- Pain relief
- Anti-inflammatory
- Anti-bacterial
- Digestive issues
- Skin treatment.[19]

LAVENDER

BOTANICAL DESCRIPTION

- **Kingdom:** Plantae
- **Division:** Tracheophyte
- **Class:** Magnoliopsida
- **Order:** Lamiales
- **Family:** Lamiaceae
- **Genus:** Lavandula
- **Sub family**: Nepetoideae.[20]

PHYTOCONSTITUENTS

- Linalool
- Linalyl acetate
- Limonene
- Camphor
- Terpene
- Lavandulol
- Menthone.[21]

THERAPEUTIC PROPERTIES
- Anxiety and depression
- Pain
- Skin condition
- Sleep
- Menstrual cramps
- Nervous disorder
- Migraines.[22]

NEEM

BOTANICAL DESCRIPTION
- **Botanical name:** Azadirachta indica
- **Kingdom:** Plantae
- **Order:** Rutales
- **Species:** Indica
- **Genus:** Azadirachta
- **Class:** Dicotyledonae
- **Division:** Magnoliophyta.

PHYTOCONSTITUENTS
- Azadirachtin
- Nimbin and Nimbidin
- Salanin
- Quercetins
- Nimbolinin and Nimbidol
- Ascorbic acid

THERAPEUTIC PROPERTIES
- Skin treatment: psoriasis
- Infection
- Repels insects and mosquitoes
- Reduces joint pains
- Reduces dandruff
- Treats wounds.[23]

ORANGE PEEL

BOTANICAL DESCRIPTION
- **Botanical name**: citrus sinensis
- **Kingdom:** plantae
- **Order:** Sapindales
- **Species:** citrus sinensis
- **Family:** rutaceae
- **Class:** Magnoliopsida
- **Division:** magnoliophyte

PHYTO CONSTITUENTS
- Hesperidin and naringin (flavanone glycosides)
- Tannins
- Terpenoids
- Saponins
- Pectin
- Essential oils
- Ascorbic acid

THERAPEUTIC PROPERTIES
- Anti-inflammatory
- Anti-oxidant
- Anti-microbial
- Treats hyper pigmentation
- Digestion
- Weight loss.[24]

CONCLUSION

The demand for more and more bioactive compounds from plant sources is continuously increasing. To meet the requirement of pharmaceutical industries, there has been an increased interest in the cultivation of vitex Negundo in our country.

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