

# Vitex negundo a plant with multi- Pharmacological benefits

Uttam Dube<sup>1</sup>; Gaurav Madke<sup>1</sup>; Yogesh Kumbhar<sup>1</sup>

<sup>1</sup>Trinity College of Pharmacy, Pune, Maharashtra

**Author Email:** uttamdube484@gmail.com

**Abstract**—The traditional plant vitex negundo L. family Verbenaceae posses different activity such as analgesic activity, antioxidant activity, neuroprotective activity, anticonvulsant activity, etc. It has been proved that various parts of plant such as leafs, fruits, seeds etc. provide essential nutrients compounds to human diet. It is the only plant that asingle plant species find use for treatment of a large spectrum of human health in traditional as well as modern medicine. In this paper already reported medicinal uses and pharmacological activities of plant has been reviewed.

**Keywords:** Anti-Arthritic activity, laxative action, Nirgundi, Skin crack, Soxhlet extraction

## I. INTRODUCTION

The Sanskrit word for V. negundo – nirgundi – literally means ‘that which protects the body from conditions. It's one of the plant mentioned in all of the Ayurvedic Samhitas. People in ancient India linked two kinds of nirgundi, one bearing white flowers (shwetapushpi), called sindhuvar, and the other having blue flowers(pushpanilika) designated as nirgundi in Sanskrit (Balkishan).

The plant is available and it's cheaper and further over, a confident to reduce the pain and lump [1]. The leaves are the main usable. The stem as well as seeds are also have many unique medications and conditions.It's rate of interest has been increased in diligence and the use of medicinal plants throughout the world which are growing a rate of 7-15% annually[2].The world is gradually turning to herbal phrasing which are known to be effective against a large number of diseases[3]. Plant remedies are effective without side-effects, provided they are selected properly and taken under proper medical supervision.The active component, most often a secondary metabolite, varies in quality and volume for a given plant species growing in different locales[4].

Vitex negundo, generally known as the five-leaved chaste tree. Herbal remedies are a type of indispensable drug that originates from plants. Used to heal ails and disease and to address psychological concerns, herbal remedies have been around for centuries and were the precursor to ultramodern drug. Herbal remedies are attained from a wide variety of natural resources including plant leaves, bark, berries, flowers and roots[5].The leaves are most potent for medicinal use. Vitex negundo has been used to several disease such as; inflammation, eye, toothache, ulcers, fever, asthma, headache, digestion problems, sinuses, bronchitis, antibacterial, antipyretic, antihistaminic, analgesic, insecticidal, cure for snake bite, etc. The leaves of these plants have been shown mosquito repellent effect as well as ant. The plant also found to have anticancer, rheumatoid arthritis, mending and hepatoprotective potentials[6]. The leaves are used for treatment inflammation, skin-ulcers, gonorrhoea, and bronchitis. They are also used as mixers, vermifuge to treat catarrhal fever. Oral administration of the leaves claims to have antihyperglycemic, antibacterial, antipyretic, antihistaminic agents[7][8].

## II. TAXONOMIC / SCIENTIFIC CLASSIFICATION\_[9][10][11][12]

Kingdom - Plantae - Plants

Sub Kingdom - Tracheobionta - Vascular plants

Super Division - Spermatophyta - Seed plant

Division - Magnoliophyta - Flowering Plant

Class - Magnoliopsida - Dicotyledons

Sub Class - Asteridea

Order - Lamiales

Family - Verbenaceae

Genus - Vitex linn

Species - Vitex negundo Linn. (Chaste tree)

### III. GEOGRAPHICAL SOURCES

It's common throughout India from littoral belt to tropical Western Himalayas and Andaman islets, abundant in drier zones. It's particularly set up in Karnataka and Tamilnadu wild as well as cultivated[9]. The factory is scattered each over the world and can be primarily set up in sticky places or along water courses in wastelands and mixed open timbers and has been reported to do in India, Afghanistan, Pakistan, Sri Lanka, Thailand, Malaysia, Eastern Africa and Madagascar [3][13][14][15]. A large sweet shrub, the factory is distributed throughout the lesser part of India up to an altitude of 1500m in the external region of Himalayas and some sections of Himachal Pradesh [16][17][18]. It's grown commercially as a crop in corridor of Asia, Europe, North America and West Indies[19]. In some areas of Assam, it's an important part of traditional cooking [20].

### IV. MORPHOLOGY

A large shrub or sometimes a small slender tree; bark thin, slate; branchlets quadrangular, whitish with a fine tomentum[3][9][21]. Roots are woody, fairly thick, 8-10 cm in fringe; external face brownish, rough due to the presence of longitudinal crannies and a small rootlets. The bark is truly thin and corky portion can be scrapped off easily. Bark occurs in conducted-0.5 cm thick; external face pusillanimous slate, rough, lenticelular, longitudinally conducted and diagonally cracked; inner face darker than external, sallowish and smooth; fracture short and splintery[22]. Leaves are palmately compound, petiole 2.5- cm long; 3- 5 foliate; the middle leaflet is petiolate[3][21]. in trifoliate leaf, leaflet lanceolate or hardly lanceolate, acute, entire or rarely crenate, middle leaflet 5- 10 cm long and 1.6- cm broad, with 1-1.3 cm long petiolule, remaining twosub-sessile; in pentafoliate leaf inner three leaflets have petiolule and remaining twosub- sessile Flowers in pedunculate banged tomentose cymes, opposite along the quadrangular tomentose rachis of a large terminal constantly compound pyramidal panicle( axillary peduncles in the upper axils sometimes present); bracts 1.5-2.5 mm long, lanceolate caduceus. Ovary glabrous; style glabrous; stigma diverged. Drupe lower than 6 mm fringe, black when ripe[3][21][23][24].

### V. MICROSCOPY

The bark is veritably thin and Transverse section shows external cork conforming of 12- 20 rows of nearly boxy to blockish cells, the cells of supplemental rows being thick walled but not lignified. Stem bark In transverse section the dinghy shows well advanced periderm and secondary phloem rudiments. Petiole shows single concentrated epidermis having a number of unicellular, bicellular and uniseriate multicellular covering trichomes and also glandular trichomes with uni to tricellular stalk and uni to bicellular head; cortex composed of external collenchymatous tissue and inner 6- 8 layers of parenchymatous tissue; collenchyma well developed in rudimentary region and gradationally decreases in middle and apical regions; pericyclic fibres absent in rudimentary region of petiole and present in the form of a spastic ring in apical region girding central steed shoe- shaped vascular pack; a many lower vascular packets present ventrally between arms of central vascular pack and two, or infrequently three, packets positioned outside the arms. Lamina- shows single concentrated epidermis having substantially unicellular hairs, bi and multicellular and glandular trichomes being rare; hypodermis 1- 3 concentrated intruded at places by 4- 8 precipice layers containing chlorophyll; a large number of veins enclosed by bundle sheath transverse mesophyll; stomata present only on the frontal face, covered densely with trichomes; vein islet and vein termination number of leaves are 23- 25 and 5- 7 independently[22].

### VI. POWDERS CHARACTERS

Grey to grayish- brown; thick- walled, angular cells of cork., multitudinous polychromatic demitasse of calcium oxalate, demitasse fibres, bounce grains simple, 5- 19  $\mu$  India, substantially round to oval with certric hilum; compounds starch grains having 2- 3 factors, fractions of xylem vessels with framed pitched and thick- walled xylem fibres.[9].

### VII. PHYTOCHEMICAL

#### VII.I. SEEDS

SR.NO.	Chemical constituent	References
I	5,7,3'-trihydroxy 6,8,4'-trimethoxy	[25]
II	6-hydroxy-4-(4-hydroxy-3- methoxy-phenyl)-3-hydroxymethyl-7-methoxy-3, 4- dihydro-2- naphthaldehyde	[26]

III	n-Tritriacontane, n-hentriacontanol, n-hentricontane, n-nonacosane, $\beta$ -sitosterol, phydroxybenzoic acid and 5-oxyisophthalic acid, 3, 4-dihydroxybenzoic acid [53-55], artemetin	[27]
IV	3 $\beta$ -acetoxyolean-12-en-27-oic acid, 5 $\beta$ -hydro-8,11,13-abietatrien-6 $\alpha$ -ol, 2 $\alpha$ ,3 $\alpha$ -dihydroxyoleana-5,12-dien-28-oicacid, 2 $\beta$ ,3 $\alpha$ -diacetoxyoleana-5,12-dien-28-oicacid and 2 $\alpha$ ,3 $\beta$ -diacetoxy-18-hydroxyoleana5,12-dien-28-oic acid	[28][29]
V	vitedoin A, vitedoamine A, vitedoin B	[30][31]

**TABLE1.** chemical constituent of seeds**VII.II. ROOTS**

SR.NO.	Chemical constituent	References
I	2 $\beta$ ,3 $\alpha$ -diacetoxyoleana-5,12-dien-28-oic acid;2 $\alpha$ ,3 $\alpha$ -dihydroxyoleana-5,12-dien-28-oic acid, 2 $\alpha$ ,3 $\beta$ diacetoxy-18-hydroxyoleana-5,12-dien-28-oic acid, vitexin and isovitexin	[32]
II	acetyl oleanolic acid, sitosterol, 3-formyl-4.5-dimethyl-8-oxo-5H-6,7-dihydronaphthofuran (a new furanoeremophilane)	[33]
III	Vitexoside, agnuside, R-dalbergiphenol	[34][35]
IV	negundin A, negundin B, 6-hydroxy-4-(4-hydroxy-3-methoxy)-3-hydroxymethyl-7-methoxy-3,4-dihydro-2-naphthaledehyde, vitrofolal E, (+)-lyoniresinol, (+)-(-)-pinosresinol, and (+)-diasyringaresinol	[36]

**TABLE2.** chemical constituent of roots**VII.III. STEM AND BARK**

SR.NO.	Chemical constituent	References
I	p-hydroxy benzoic acid, $\beta$ -sitosterol	[37]
II	Hepta methyl-phenyl-cyclotetra siloxane, Cyclo heptasiloxane,tetra decamethyl Nona methyl, phenylcyclopenta siloxane, Cyclo octa siloxane,hexadeca methyl, Borazine, 2,4,6- triphenyl-11, 3, 5-tryophl, Nonamethyl, phenyl-cyclopenta siloxane , Tetracosamethylcyclododeca siloxane, penta methyl phenylDisilane, Heptasiloxane, 1,1,3,3,5,5,7,7,9,9,11,11,13,13,-tetradeca methyl,3 $\alpha$ ,3 $\alpha'$ -Dichloro-2 $\alpha$ ,3 $\alpha$ - ethano-3 $\beta$ -methyl-cholestan-2 $\alpha$ -one, Octadecamethyl, cyclonona siloxanes Cyclo octa siloxane, hexadeca methyl	[38]
III	3,6,7,3',4'-Pentamethoxy-5-Oglucopyranosyl-rhamnoside, vitexin cafeate, 4'-O-methyl myricetin- 3-O- [4'-O- $\beta$ -D-galactosyl]- $\beta$ -D-galactopyranoside	[39]
IV	5-hydroxy-3,6,7,3'4'-pentamethoxy flavone, 5-hydroxy-3'dihydroxy-7,8,4'-trimethoxy flavanone,3 $\beta$ acetoxy-olean-12-en-27-oic acid, 3 $\beta$ -hydroxy-olean-5, 12-dien-28-oic acid	[40]
V	bark $\beta$ -amyrin, epifriedelinol and oleanolic acid	[41]

**TABLE3.** chemical constituent of stem and bark**VII.IV. DIFFERENT CHEMICAL CONSTITUENTS OF NECESSARY OIL OF FROM LEAVES, FLOWERS AND DRIED FRUITS ARE**

SR.NO	Chemical constituent	References

I	viridiflorol(19.55%), $\beta$ -caryophyllene (16.59%), sabinene (12.07%), 4-terpineol (9.65%), $\gamma$ -terpinene (2.21%), caryophylleneoxide (1.75%), 1-oceten-3-ol (1.59%), and globulol (1.05%)	[42]
II	$\delta$ -guaiene, guaia-3,7-dienecaryophyllene epoxide, ethyl-hexadecenoate; $\alpha$ -selinene, germacren-4-ol; caryophyllene epoxide, (E)-nerolidol, $\beta$ -selinene, $\alpha$ -cedrene, germacrene D, hexadecanoic acid, pcymentene and valencene	[43]

**TABLE4.** necessary chemical constituent**VII.VI. LEAVES**

SR.NO	Chemical constituent	References
I	6'-p-hydroxy benzoylmussaenosidic acid	[44]
II	dimethoxyflavone, 5,3'-dihydroxy-7,8,4'-trimethoxyflavone, 7,8-Dimehylherbacetin-3- rhamnoside, vitegnoside	[45]
III	2'-p-hydroxybenzoyl mussaenosidic acid, agnuside, lagundinin, aucubin and nishindaside	[46]
IV	terpinen-4-ol, $\alpha$ -copaene, $\beta$ -caryophyllene, $\beta$ -elemene, camphene, $\alpha$ -thujene, $\alpha$ -pinene, sebinene, linalool, stearic acid and behenicacid	[47]
V	1,4a,5,7a tetrahydro 1 $\beta$ Dglucosyl (3',4'dihydroxybenzoyloxymethyl)-5-ketocyclopenta[c] pyran-4- carboxylic acid, luteolin-7-O- $\beta$ -D-glucosid	[48]
VI	$\delta$ - elemene, $\beta$ -elemene, $\beta$ -eudesmol, camphene, careen, 1,8- cineol, 1-oceten-3-ol, $\gamma$ -terpinine, $\alpha$ -phellendrene, camphor, $\alpha$ - guaiene, abieta-7,13-diene, geranial, bornyl, neral acetate, nerolidol, $\beta$ -bisabolol, cedrol, $\alpha$ -elemene, $\beta$ -phellendrene	[49][50][51][52][53]
VII	4,4''- dimethoxy-trans-stilbene, 5,6,7,8,3'4'5- heptamethoxy, 5-hydroxy-6,7,8,3'4'-pentamethoxy (5-Odesmethylnobiletin), 5-hydroxy-6,7,8,3',4',5-hexamethoxy(gardeninA), 5-hydroxy-6,7,8,4'-tetramethoxy (gardeninB), 5- hydroxy-7,3',4',5'-tetramethoxyflavone (corymbosin)	[54][55][56][57]
VIII	viridiflorol, squalene, 5-hydroxy-3,6,7,3',4'- pentamethoxy flavone, 5-hydroxy-3,7,3',4'-tetramethoxy flavones, 3,4- dihydroxybenzoic acid, luteolin-7-glucoside, isoorientin, 5,3-dihydroxy- 7,8,4- trimethoxy flavanone, p-hydroxybenzoic acid.	[58]

**TABLE5.** chemical constituent of leaves**VIII. PHARMACOLOGICAL ACTIONS****VIII.I. SKIN CRACK MENDING IMPLICIT**

Rapid restoration of the wounded skin was observed with the operation of both the sections in indirect excision and direct gash crack model in Wistar rats. Particularly waterless section treated rats showed 98.53 and ethanolic section showed 94.97 accelerated compression of excision Crack with an increase in the tensile strength in case of gash crack as compared to the standard reference medicine, Cipladine. The crack mending Parameters like Hydroxyproline, Collagen, and Hexosamine were estimated in regenerated skin which further solicits the eventuality of the leaves of Vitex negundo to heal experimentally convinced crack[59].

**VIII.II. HEPATOPROTECTIVE ACTION**

Vitex negundo splint ethanolic section was delved against hepatotoxicity produced by administering a combination of three anti-tubercular medicines Isoniazid 7.5 mg/ kg, rifampin 10 mg/ kg and pyrazinamide 35 mg/ kg for 35 days by oral route in rats. Vitex negundo splint ethanolic section was administered in three canted boluses of 100, 250 and 500 mg/ kg orally, 45 min previous to Anti-tubercular challenge for 35 days. Hepatoprotective Effect of Vitex negundo splint ethanolic section was apparent in the boluses of 250 and 500 mg/ kg. Histology of the liver section of the creatures treated with the splint ethanolic section in the boluses of 250 and 500 mg/ kg further confirms the action[60].

**VIII.III. GASTROPROTECTIVE ACTION**

Waterless section of vitex negundo against the gastric mucosal damage convinced by aspirin was studied in albino rats. aspirin was administered intraperitoneally at a cure of 80mg/ kg body weight to induce ulcer and the attendant elevated situations of lipid peroxide was taken as an indicator of oxidative stress. the gastroprotective effect of vitex negundo was observed at an oral cure of 200mg/ kg body weight administered for 18 days before ulcer induction. the effect of vitex negundo on the situations of rbc, wbc, and proteins, carbohydrates, lipid peroxides, super oxide dismutase and glutathione were delved in ulcer induced rats and the results revealed that vitex negundo has a vital part in treating ulcer[61].

#### **VIII.IV. MOSQUITO REPELLENT ACTION**

Oil attained from brume distillate of Vitex negundo leaves was fractionated by column chromatography. Mosquito repellence action, as estimated against *Aedes aegypti* was substantially confined to the most polar fragments. The protection period against mosquito mouthfuls by polar fragments ranged between 1- 3h. still, the mean protection period values of these fragments didn't show significant increase in the posterior sub fragments[62].

#### **VIII.V. LAXATIVE ACTION**

Crude waterless section of vitex negundo leaves at boluses 100 and 200 mg/ kg was delved for laxative action in albino rats that were compared with standard medicine agar- agar( 300mg/ kg,p.o.) in normal saline. the rats were dieted for 12 hours before the trial. after 8 hours of medicine administration the faeces were collected and counted. the section was set up to produce significant laxative action in cure dependant manner. the action may be contributed to the phytoconstituents present[61].

#### **VIII.VI. ANTIHYPERGLYCEMIC ACTION**

Confirmation of the ethnobotanical use of the leaves of vitex negundo as antidiabetic agents using the oral glucose forbearance test. in this test leaves of vitex negundo displayed antihyperglycemic conditioning when fed contemporaneously with glucose vitex negundo displayed lesser anti-hyperglycaemic action vitex negundo showed a significant drop in blood glucose position at 60min[63][64].

#### **VIII.VII. ANTHELMINTIC ACTION**

Ethanol section of vitex negundo was delved for anthelmintic action against indian earthworm *pheritima posthuma*. various of section were tested and results were expressed in terms of time for palsy and time for death of worms.[64].

#### **VIII.VIII. ANTI-ASTHMATIC ACTIVITY**

The antiasthmatic activity of Ethanolic, petroleum ether, aqueous and ethyl acetate fractions of vitex negundo leaves was evaluated by various experimental models like mast cell degranulation by compound 48/80, passive cutaneous anaphylaxis and egg-albumin induced asthma. [65].

#### **VIII.IX. ANTIMICROBIAL ACTIVITY**

The Ethanolic extract was observed for preliminary antimicrobial activity. Antimicrobial activity was determined by the Disc-Diffusion method ethanolic extracts exhibited significant anti-microbial activity comparable to the standard drug Tetracycline. In another study bioactivity guided phytochemical investigation of methanolic extract of leaves of vitex negundo resulted in the isolation of eight compounds under silica gel vlc, cc and preparative tlc[66].

#### **VIII.X. ANTI-ARTHRITIC ACTIVITY**

Ahirrao R. A et al., 2012 studies the anti-arthritis property of petroleum ether and fresh aqueous extracts of leaves of Vitex negundo were studied for anti-arthritis activity against formalin induced arthritis in Wistar albino rats of either sex. Both the extracts were found to significantly inhibit the paw oedema induced arthritis by formalin induced in rats. The results indicate that aqueous extract of Vitex negundo Linn leaves had significant anti-arthritis property when compared with the standard and untreated control. Petchi RR et al., 2011 studies the anti-arthritis effect of ethanolic extract of leaves of Vitex negundo in male albino Wistar rats using Freund's complete adjuvant model. By hot percolation method leaves were extracted by using petroleum ether. The male Wistar rats were used for the Chronopharmacological and anti-arthritis study. This study concluded that the leaves extracts of Vitex negundo showed significant anti-arthritis activity against Freund's complete adjuvant-induced arthritis in male Wistar rats[76][77].

#### **VIII.XI. ANTI-AMNESIC ACTIVITY**

Kanwal A et al., 2010 observed the anti-amnesic activity of aqueous extract of Vitex negundo in scopolamine induced amnesia in rats. Extract of plant has showed same response to standard drug. This study demonstrates that aqueous Vitex negundo extract has potential therapeutic effects on improving the anti-amnesic activity in rats through inhibiting lipid peroxidation, augmenting endogenous antioxidant enzymes and decreasing acetyl cholinesterase activity in brain[78].

**VIII.XII. ANTITUMOR ACTIVITY**

Ethanol extract of leaves of *Vitex negundo* has been evaluated against Dalton's ascetic lymphoma in Swiss albino mice. This study was increased the life span to assess tumor volume, tumours cell count, viable tumours cell count, mean survival time. The result increased that ethanolic leaves extract of *Vitex negundo* had more significant antitumor activity when compare with the standard drug[79].

**VIII.XIII. ANTIOXIDANT ACTIVITY**

Evaluated the excellent antioxidant potential activity of methanolic extract also exhibited a strong free radical scavenging activity by 1,1-diphenyl-2-picrylhydrazyl method and caused a significant reduction. The formation of thiobarbituric acid binding the substances when evaluated for the lipid peroxidation inhibitory in antioxidant activity.[80][81][82][83]

**IX. TOXICITY**

Toxicity and adverse effect primary acute toxicity and adverse effect study of ethanolic leaves extract in Albino rats by oral route carried out by Tandon and Gupta (2004) indicated it to be virtually nontoxic, at LD50, cure recorded was 7.5 g/ kg/ wt. The stomach showed no histomorphological changes in any of the portion of the extract studied. Still, cure dependent histomorphological changes were observed in the samples of the heart, liver and lung at cure 7.5 g/ kg/ wt. 72 [84][85].

Pharmacokinetic- commerce of *Vitex negundo* Linn And paracetamol.

Medicine- medicine commerce was observed in between orally- administered ethanolic extract of leaves of *Vitex negundo* and Paracetamol in albino rats. Solvent free Dried extract of *Vitex* leaves was orally given to experimental rats in different portion (62.5- 1000 mg/ kg/b.wt.), daily for six successive days. On days 3 and 6, paracetamol( 100Mg/ kg/b.wt.) was orally administered to these treated rats and control rats at different time intervals( 5 min – 120 min), blood was collected from each beast and paracetamol attention was determined in tube by using HPLC with UV sensor at 249 nm. Different pharmacokinetic parameters were calculated by non-compartmental model. A significant decline In tube attention of paracetamol with time-gap was recorded with the adding cure of *Vitex* extract[85].

**X. PREPARATION OF EXTRACT****X.I. LAB SCALE**

*Vitex* leaves were washed and dried at 55 °C in an air dried for 48h. Dried drug material was pulverized independently with a Wiley mill( model- 4276 M, Thomas, Scientific, USA) to pass a 20 mesh sieve and stored in a sealed plastic bag. About 500 mg of different granules were taken in a 5-50 ml volumetric beaker, extracted with Methanol: lactic acid DES and vortexed for two min. followed by sonication (33 MHz, Roop Telesonic, India) at room temperature for 1- 3 min. The process was repeated thrice for complete extraction. After sonication methanolic extract parts were combined and faded to blankness in vacuum. Dried extract was attained as 13.1g. Artificial The drug material leaves were washed and shade dried for 7days. The dried leaves were grinded to fine greasepaint. Finely pulverized leaves was taken for extraction by using two process; A) Maceration process, B) Soxhlet extraction[86][87].

**X.II. MACERATION PROCESS**

Dried powdered samples were mixed with of ethyl acetate/ ethanol/ hexane/ petroleum ether in conical beaker and kept in shaker for 24 hours and also whirlpool for 15- 30 min. After that it was allowed to stand for another three/ four days at room temperature for settle down the drug material accoutrements. The attained result was filtered and filtrate was faded to semi solid mass at 30 °C using Hot plate. The attained extract parts were kept in watertight bottles and stored at freezer for farther studies[86][87].

**X.III. Soxhlet extraction**

Dried leaves were taken for extraction with soxhlet using different solvent mixture ( nonpolar to polar solvent mixture ) consecutively with petroleum ether, hexane, ethyl acetate and also ethanol. The attained extract parts were faded to semi-solid mass and stored at 4 °C for further use[86][87].

**XI. MEDICINAL IMPORTANCE**

Herbal drug, not only rather curing a particular complaint, but aims at returning the body back to its natural state of health. The phytochemical factors of Medicinal shops frequently act collectively, additively or synergistically for the enhancement of health.

After assessing the different chemical factors present in different corridor of *Vitex negundo*, it's essential that focus shifts to the medicinal operations of the herbs. Myriad medicinal characteristics have been credited to *Vitex negundo* and the herbs has also been considerably used in treatment of a plethora of affections[88][89].

## XI.I. TRADITIONAL DRUG

Traditional drug substantially comprises of Indian Ayurveda, Arabic Unani drug and traditional Chinese drug. In Asia and Latin America, populations continue to use traditional drug as a result of literal circumstances and artistic beliefs. Traditional drug accounts for around 40 of all health care delivered in China. Up to 80 of the population in Africa uses traditional drug to help meet their health care requirements.

## XI.II. AYURVEDA

The herbs finds citation in the verses of the Charaka Samhita which is incontestably the most ancient and authoritative text of Indian Ayurveda. *Vitex negundo* has been designated as an anthelmintic and is specified as a vermifuge in the exposition on the Charaka Samhita by Sharma. People sleep on pillows stuffed with *Vitex negundo* leaves to disband catarrh and headache and bomb the leaves for relief. Crushed splint cataplasm is applied to cure headaches, neck gland blisters, tubercular neck bumps and sinusitis. Essential oil painting of the leaves is also effective in treatment of venereal conditions and other Syphilitic skin diseases[89][90].

## XI.III. UNANI DRUG

Khare, Outlines the operations of *Vitex negundo*, generally known as Nisinda in Unani drug. The seeds are administered internally with sugarcane ginger for junking of bumps. Powdered seeds are used in spermatorrhoea and serve as an aphrodisiac when allocated along with dry *Zingiber officinale* and milk[89][95].

## XI.IV. CHINESE DRUG

The Chinese Pharmacopoeia prescribes the fruit of *Vitex negundo* in the treatment of crimsoned, painful, and fluffy Eyes; headache and arthritic joints. Uses in western herbal drug ultramodern medical world with *Vitex* began with the preface of concentrate excerpts of *Vitex* fruits in the 1950. From 1943 to 1997, roughly 32 clinical trial were conducted on a propriety *Vitex angus berry* Product for assessing its effectiveness in treating Mastitis and fibrocystic conditions, menopausal symptoms, poor lactation, uterine bleeding complaint and menstrual irregularities. In homoeopathic drug, *Vitex angus* and *Vitex negundo* Linn. Is used for different sexual asthenia- pronounced depression of vital power, unseasonable old age with apathy, tone disdain for the sexual abuse nervous fragility in unattached person delicate construction without sexual desire, emigration of prolactic fluid when straining at coprolite, cold, hard, blown, painful testicle. In general practice, the medicine is prescribes to womanish for leukaemia staining unheroic suppressed monthlies, slangy or suppressed bone milk, inflammation of uterus. The flowers are astringents and used in fever, diarrhoea and liver complaints[89][95].

## XI.V. FOLK DRUG

myth systems of drug continue to serve a large member of population, especially those in pastoral and ethnical areas, anyhow of the arrival of ultramodern drug used in the treatment of crushed splint cataplasm, Leaf is smoked, Pillow Stuffed with leaves are used in conditions like Weakness, Headache, Vomiting, Malaria, Black Fever in Bangladesh, India and Malaysia. Leaf Juice is used in Common cold wave, Flu and Cough in Guangdong of China. Essential canvases from splint, crushed splint cataplasm are used in Sinusitis and Whooping cough in Nepal[89][95].

## XII. COMMERCIAL PRODUCTS

MANUFACTURER	PRODUCT NAME	USED IN	REFERENCES
Himalaya Drug Co., Bangalore, India	Antiseptic Cream	Wounds, Burns, Fungal skin infections	[11][13]
Surya Herbal Ltd., Noida, India	Relief Cream	Joint and Muscle pain, Stiff back	[11][13]
IndSwift Ltd., Chandigarh, India	Arthrill Capsules and Massage oil	Arthritis, Joint pain, Frozen shoulder, Gout, Cervical spondylitis	[11][13]
Charak Pharma Pvt Ltd , Mumbai	Rymanyl capsule	Rheumatid arthritis	[11][13]

Hamdard Laboratories, New Delhi, India	Jigreen	Liver ailments	[11][13]
Ambica Research & Development Pvt. Ltd, New Delhi, India	Amgesic Arthritis Tablets	Arthritis	[11][13]
Trio Health Care Pvt Ltd, Gujarat	Drift ointment	Pain and bleeding in haemorrhoids	[11][13]

### XIII. SUMMARY

It belongs to Kingdom - Plantae – Plants, Division - Magnoliophyta - Flowering Plant, Class - Magnoliopsida – Dicotyledons, Order – Lamiales, Family – Verbenaceae, Genus - Vitex linn, Species - Vitex negundo Linn. (Chaste tree) . Vitex negundo is native to tropical Eastern and Southern Africa and Asia. Most commonly found in india and china . it is found throughout the greater part of India.

It mainly contains phytochemical constituents - p-hydroxy benzoic acid,  $\beta$ -sitosterol, 5,7,3'-trihydroxy 6,8,4'-trimethoxy, 6'-p-hydroxy benzoylmussaenosidic acid. This are extracted by the Maceration process and Soxhlet extraction. This constituents directly mediate the action of wound healing/ skin replacement and shows various pharmacology action.

### XIV. CONCLUSION

Form ancient time various medicinal plant are used in wide range of preparation by humans. Plants synthesized various phytochemical constituents which gives desired pharmacological action. The crack mending/wound healing Parameters like Hydroxyproline, Collagen, and Hexosamine heal the skin.

The active constituents p-hydroxy benzoic acid,  $\beta$ -sitosterol, etc which mainly heals the skin and this is Clinically proved not only Turmeric but vitex negundo is also a better option for fast recovery from skin damage.

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