

Medicinal Plants of the Family Solanaceae : A Review of Ethno Medicinal uses and Pharmacological Properties

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Abstract: *The solanaceae could be a expansive shifted family of trees, bushes and herbs counting 90 genera and more than 2000 species. Solanaceae are known for having a diverse range of alkaloids. Remedially, these are the foremost capable known anticholinergics in presence, meaning they restrain the neurological signals transmitted by the endogenous neurotransmitter, acetylcholine. Medicinally vital species of the family Solanaceae have a place to taking after genera namely: Solanum, Atropa, Capsicum, Datura, Withania, Hyoscymus, Nicotiana and Various. These species are extensively utilized for medicinal purpose all through the nation. The Solanaceae family is characteristically ethnobotanical, that's , broadly utilized by people. It is critical source of nourishment, zest and pharmaceutical. Be that as it may, solanaceae species are wealthy in alkaloids whose harmfulness to people and creatures ranges from gently aggravating to deadly in small amounts.*

Keywords: Solanaceae, Alkaloids, Atropine, Scopolamine, Withania, Solanum

I. INTRODUCTION

The solanaceae could be a expansive changed family of trees, bushes and herbs counting 90 genera and more than 2000 species. Solanaceae are known for having a diverse range of alkaloids. Restoratively, these are the foremost effective known anticholinergics in presence, meaning they hinder the neurological signals transmitted by the endogenous neurotransmitter, acetylcholine. Medicinally critical species of the family Solanaceae have a place to taking after genera namely: Solanum, Atropa, Capsicum, Datura, Withania, Hyoscymus, Nicotiana and Different. These species are extensively utilized for medicinal purpose all through the nation. The Solanaceae family is characteristically ethnobotanical, that's , broadly utilized by people. It is vital source of nourishment, zest and medication. Be that as it may, solanaceae species are wealthy in alkaloids whose poisonous quality to people and creatures ranges from gently chafing to lethal in small amounts.

Solanum:

Solanum nigrum is belongs to family solanaceae. The parts of the plant are toxic. It can be harm is considered a weed plant the human body and it. Some parts of the is used as a food in and plant part and we some locales a traditional medicine commonly know ay makoi or black nightshade usually growth as weed in moist habitats in different kind of soil is in like kind of soil stony soil, black soil dry soil we only use as a the fruit black solanum nigrum is safe to eat. Leaves of solanum nigrum prefer oy vegetable before we eat try to boil 20 min in fresh water # the boiling process remove all tonein in these plant the toruin name in solanum nigrum is tonic glycoalkaloid solanine. Result is toure we eat unripe fruit of the plant. They grow as forbs, sub shrubs, vines of small trees Like all plant in these family having beautiful flowers & fruits. In these types of genes contain highly 1.200 to 1.800 species. Very long time ancient time it is used as medicinal purpose urinary track infection in human cures with used the juice of the plant as a medicine like diuretic drug. In human a intestine problem are face to with the help of ash of penducle A of the plant front to help maintain lower blood cholesterol. It is very useful in pharmaceutical world to produce the medicine for humans. The medicine use as a anti-tumorigenic, antioxidant anti inflammatory antipyretic and diuretic The fruit of the plant of solanum nigrum in stomach problem, cramps pain fruit of black nightshade is effect full to the Juice of We for stein condition skin infection. Migrain is useful as medicine show the better effect cancer th cancers. Plant of solanum

nigrum highly found in Natural places like forest area in farm the fruit of plants looks small size round balls, berry the colour is dark red or light med its Leaves of plant use in the treatment of joint pain very useful or body play. It's regulate the human blood pressure and maintain it properly in basic level. The life span of solanum nigrum tree is about 8 – 10 month commonly America. The higher production of plant is in north- Indonesia and Africa. High amount of solanum nigrum is produce in this place. The roots of plant are use as medicine in otopathy , rhinopathy & hepatitis. Whole plant use as antiseptic cardiogenic and diuretic. In the fruit & black nightshade are used in liver disorder.

Atropa

Name Atropa is start belongs from Greek goddess Atropos & belladonna means beautiful lady in Italian Language It is meaning of Atropa belladonna is used for medicinal products like cosmetic Atropa belladonna is used in treatment of headache histaminic reaction, inflammation and motion sickness peptic ulcer daises and also as homeopathic drug. Uses of Atropa belladonna for treatment of reaction sickness relax muscle of body, treatment in peptic ulcer treatment of menstrual cycle and histamine reaction. Sometimes mushroom cause poisoning then the Atropa belladonna use as antidote in case of mushroom poisoning Solanaceae A belladonna is the most toxic plant in The fruit very danger for humans because the taste of fruit is sweet its looks like berries and have red colour its looks beautiful. The humans its thinks is not harmful and consumed as food & face toxic & poisoning effect. In future consumption of high amount cause increase heart rate hallucinations, Convulsions & delirium, urinary me tension. Constipation day month I throat, blurrier vision, sensitivity of Light, Lost of balance.

Belladonna, also known as deadly nightshade growth tonight is about 2 meter (3-4 feet). It fruit is sweet shiny black and size like a cherries – leaves of plant and green and common size like 5cm. The life span of these tree are 8-12 month. Average Number of fruit per tree is 1 – 2 thousand each fruit have a seed then the seeds are continue life cycle of the A. belladonna plant all parts of plant are useful in medicine for used in asthma, whooping, cough, cold, It use parkinson disease & inflammatory bowel disease. It use a antispasmodic for treat diarrhea belladonna have some type of advantage & some disadvantage It's used as medicine for medicinal purpose but directly consumption in large amount causes the poisoning of 4 harmful for human body very & Large quantity problem faced in these A. belladonna poisoning. The Atropine is very useful for relaxing muscle regulate heart rate Atropine and other is scopolamine is have important medicinal properties belladonna used of sleep inducing such as a nerve pain (painkiller). Plant root contain atropine scopolamine and hyoscyamine chemicals also used in treatment of ulcer Ophthalmologists we atropine to dilate pupil for the patient. A belladonna very extremely use & in case of unwanted headaches with sensitivity towards light. It used in treatment of fever in homeopathy. The risk is use any a addictive nature means opium. Overdose of Opium is Cause death Opium belladonna cause breathing & chest of Lungs diseases hard way opium is only in critical condition for shortest time. Long time & high dose cause the brain and C.N.S. related problem harmful effect on brain is not proper working slow process of brain Shows on The brain have good supply of water for god good work Opium nature is caufs mouth day means it damage the water body parts cycle. Solanaceae is large varied plants family. It's included" 90 geneses and more than 1800 species, characteristics bicyclic structure its included scopolamine by hyoscyamine and atropine. Solanaceae also known as night shades commonly 1500- 2500 species is involved Solanaceae are dicots an eudicots for example is brinjal, tomato, potato etc. are used as a food. Solanaceae name derives from the genus soleman. The name solanaceas is resemblance of flower is sun and the side lines is rays. The family Solanaceae plant & trees are show all world I continents but is not show in Antarctica. The big amount of diversity is found south america. Capsaicin is natural alkaloid found in many species of nightshade family means also Solanaceae family specially chili peppers basically solanaceae family fruits are commonly used as food size of plant are 4-5 long at Life spane is. About 6-8 month of some trees & Same plant and trees have 2-4 years 4 flowers like pentamerous, rarely unisexual Tomato and Potato are the most consumed fruit in family solanaceae. Alkaloid Atropine is the main chemicals are we for help in beating fit. Muscles and further more help in easing torment Nicotina tabacum created the Nicotine and stramonium from the plant Dalame stramoniy in medication generate from the plant Datura stramonium The medicine use for the treatment of asthma and Parkinson sickness Capsicum annum is basically used for production of chili powder in India and other country Importance of solanaceae family is produce large quantity of food and moved in medication work for produce medicine and etc In family solanaceae they have a some anticancer properties, such as scopoletin in solmargin capsaicin in & Inithonstoides found in solanaceae.

Capsicum

Capsicum is the flowering plant in the night shade family solanaceae. Have many subspecies cultivars & varieties Red pepper, hot pepper, paprika, Hungarian Pepper tabaco pepper is capsicum common name – plant of family solanaceae beneficial effect on obesity, hyperglycemic and hypertension. In human being. Capsicum contain active pungent principle chemical Compound called capscycinoid. Capsicum compound have the anti-inflammatory properties and antioxidant properties. Studies show capsaicin in Capsicum is help to reduce pain like a pain killer. It kills: bacteria and vireses in human body. Bacteria infection that are resistance to antibiotic The name capsicum from Greek word kapto. Which means to bite. This refers to the hot burning sensation in the mouth that most chilies produce. Capsicum also originated from the Latin word capsa. Which means bone, a reflection of the squirish shape of the fruit. Additional nutrients in capsicum include: Vitamin such as Vitamin – B5, Vitamin C, which is high in and peppers vitamin E, which is high in dried chili.

- **Diabetes:** studies suggest capscucien has several action that have an anti-diabetic effect. These include reducing insulin which make it easier for blood glucose to get inside cells from the bloodstream capscicum also help prevent obesity which is an important risk factors for diabetes.
- **Cholesterol:** capacity decrease to cholesterol, triglycerides and also doss density lipoprotein, know as bad cholesterol Increase high-density lipoproteins known as good cholesterol
- **High blood pressure:** capsicum reduces high blood pressure with several benefits. The fruit of the capsicum plant contain a capsaicin chemical capsatin help reduce pain and swelling, capsaicin contain extremely high amount of vitamin & help in immune titration wound healing and the synthesis of callagan. In addition to vitamin E. capsicum is also have high in vitamin A for immune support, reproduction and rise strength capsicum fruits botanically classified as berries they are commonly vegetable ingredient or site dub other varieties of the genus capsicum are Cato catalo my chili popper when they are cultivated for their pungency

Datura

Datura is a genus of nine species of highly poisonous Commonly know we thorn apples or jimsonweeds but also known as davits trumpets moonflower English common name is hells bell and devils analgesic, antiemetic and anti-inflammatory they are uses in treatment of intestinal pain + stomach pain. Result from worm infestation toothache and fever from inflammation that Truce of fruit applied to scalp of head for treat dandruff and falling quantity of dendrite It remove large and healing the strong most of heist It is several ways to ingest Datura plants including Datura stramonium plant can be smoked brewed! Tea or converted in skin ointment all port contain variable amount of psychedelic compound. Dating stramonium D a widespread annual plant its contain hyoscimine & scopolamine, atropine – Can produce poisoning with a severe anti cholinergic syndrome. The Ingestion of Tout raked are obtained its hallucinogenic & camphoric effect Pature plant are available in whole world except antartica Highly used of datura in medicine and treat many diseases in human being all points of plant are toxic, poising may occur after consuming any part of the plant secretly seeds and flower are extremely pass poisoning which can cause arrhythmias fever, respiratory depression. Hallucination, psychosis and even death if taken internally Datura plant cause death commonly growth height of 2.5.ft. The plant berries stench and is widely found growing in naturally in clayey – loamy soil found in follow field old feedlots, waste area. Nearby construction sites, deserted vacant places, and Even in waste anta plant has purplish-green hollow steel stems and smooth exactOval-shaped leaves that tire arrange alternately on it Smell of flayers floral in three attesting distinct colors usually larger bisexual and hypogenous fruit have bitter acid-like seeds are enclosed within fruits and are spiny Color of root is brown, cylindrical and brunched! The most common species of Datura are extensively medication work Datura as ayurvedic medicine purposes is widely used for treatment of. Asthma cold cough and painful condition also white patura also found Himalayas, Kashmir to Sikkim source of a hypnotic drug known by stromonium thease species of datura used's potent hypnotic & Sedative effect. Pharmacological constituent of datura has mother lode of antioxidant alkaloids. Flavonoids organic compound and also bioactive components in Dutura include Patrays, Datureidiol Atropine, Hyoscine, fotudine Niacin matic acid, Albumen. This plant is used as at whole in therapeutic It leaf flower and seed are also uscel individually for different purpose.

Withania

Withania somnifera, known commonly as an ashwagandha or winter cherry is an evergreen shrub in the solanaceae or nightshade family that grows in India the middle East and parts of Africa species in the genus withania are several other withania somnifera is very revered herb of the India Ayurvedic system of medicine as a rasayana morphologically similar for various kind of disease processes and specially as a nemyine tonic. Taking ashwagandha daily is safe people must their doctor stick to their recommended dose and consult before consuming it with other medication Ashwagandha means withania somnifera is an evergreen shrub mainly found in India, Africa, middle East and western china. Pregnant women or breastfeeding women people with autoimmune diseases. Such as lupus rheumatoid arthritis type1 diabetes and Hashimoto thyroiditis may need to avoid it Ashwagandha help in reducing muscles weight related to stress it does not lead to weight. Extracts of withania somnifera protect the brain from damage caused by a wide range of testing, stroke injuries. Oral intake improve cognitive performance in healthy adult and in those with signs of cognitive decline Ashwagandha reduce anxiety and stress and relieves symptoms of depression. In female many benefits of ashwagandha include gentle hormone balancing and reproductive support. It also assist with improve support conjugative function. Some compound responsible for its sleep-promoting effect. Large dose of withania somnifera cause gastrointestinal upset diarrhea, nausea and vomiting probably because of direct irritation to the intestinal mucosa possible safe when used for up to 3 month The long term safety of ashwagandha is not know Large dose of ashwagandha might cause Stomach upset diarrhea, and vomiting Rarely liver problem might occur her flowers are green and yellow of the plant have a simple leaves petiolate ovate, alternate, unequal pairs with a sharp apex fruits are berry of 6mm in diameter with orange-red color when mature globous, and enclosed in the green calyx are compressed small reniform reticulate to smooth and very light. Flat yellow as medicinal point of view withania somnifera is most useful as medicine. In India the roots of plant cine used by 200 different formulation where plant used as natural medicine Help many different ailment. It boosting the immune and hematopoietic medicine Help skin diseases and osteoarthritis and also has anti aging. Effect. In Ayurveda in W.somnifera is used for over 3000 year's is considered to have excellent rejuvenating abilities while it prolongs life and has strong aphrodisiac effect youth full The plant traditionally used in India to promote youthful vigor strength, endurance and health. The principle withanolides extracted from w. somnifera in india where withanolide D and withaferin A which exhibited antitumor and cytotoxic properties In addition to alkaloids, the plant also consisted of phenolics flavonoids, phytophenols steroids and glycosides W. somnifera contain various alkaloids steroidal lactose and suponing and has been used for its purported antitumor, tonins, anti inflammatory and antidiuretic the properties extract of W.somifera and the micronutrients magnesium and activate vitamin B6 important for the nervous system it's help create the necessary breathing space fair the body and thus help inner balance.

Hyoscymus

Hyoscymus, is a small genus of flowering plant in the nightshade family solanaceae total eleven species it Contain are known as generally as the henbane, I very important plant for medication use in family solanaceae part of the plant contain alkaloid, hyoscyamine Small quantity of hyoscyne or atropine and scopolamine richer alkaloid in the roots comparison than seeds Hyoscymus plant leaves are the source of drug which is used as a sedative, narcotic use in the treatment in asthma and whooping cough. Common effect of henbane ingestion includes hallucination, dilated pupils. Restlessness, flushed skin and narcosis. Less common effect is convulsion, vomiting, hypertension hyperpyrexia and ataxia. Initial effect typically lost of 3 to 4 hours while after effects may last up to three days. Plant used to treat pain and insomnia and local anesthetic dangerous to intake directly is black henbane. Black henbane have notorious toxic but it is beneficial medicinal plant. Black henbane has a long history as notorious toxic as well as beneficial medicinal plant. The parts of black henbane plant very toxic because it have higher amount of alkaloids hyoscymin & Scopolamine and can be fatal if eaten. It is poisonous to all human being even low doses. The common symptoms of poisoning is convulsion. Rapid pulse, diarrhea, vomiting nausea, headache, salivation & coma. Hyoscymus consist from leaves & flowering of Hyoscymus niger linn belongs to family solanaceae. Whole plant and parts of plant used as medicine. some types of skin products for used for remove dandruff and for the good health of hair. To treat some types of disease preparation of drug & medicine. Some types of ayurvedic medicine. List of Drug A their ethno Medicinal uses & pharmacological properties.

1) Solanum 2) Atropa 3) Capsicum 4) Datura 5) Withania 6) Hyoscyamus 7) Nicotiana 8) Solanum-

Ethno

Medicinal uses to treat stomach-ache, headache, full menstruation, liver pain and pain caused by onchocerciasis. Pneumonia and rheumatism are treated with solanum. Pharmacological properties –Solanum nigrum has both a sedative and diuretic therapeutic effect. The leaves are used as haemostatic. Phytochemical studies indicated that fruits of this species have a good concentration of alkaloids, flavonoids, 9

Fenyl and glycosides of saponins sufficient to have pharmacological effects.

Atropa

Ethno Medicinal uses - Genus Atropa is medicinally important as it has anticholinergic antispasmodic and Antidote, emodyne, analgesic. Hallucinogenic, parkinsonism, encephalitic carcinoma and spastic dysmenorrhoea, Mydriatic, netotic and sedative.

Pharmacological properties –Mostly used as medicine for skin wound healing, in surgery for relieving muscular pain, to dilate the pupils to cure brain and nerve diseases, whooping cough, asthma, neuralgia, sciatica, gout etc.

Capsicum

Ethno-Medicinal uses-In medicine, capsaicinoids, the active ingredients of capsicum pods have been used for the treatment of gastritis, Arthritis, toothache, musculoskeletal and neuropathic pain, chronic indigestion, other pharmacological disorders and

Also microbial infections.

Pharmacological properties

Mainly this botanical containing a good source of vitamin C, vitamin A, vitamin E, vitamin B5, potassium, magnesium, iron, calcium, phosphorus and cyanoteroids interestingly ailments-Capsicum phenolic compounds are helpful in preventing and treating many ailments.

Datura

Ethno-Medicinal uses-Stramonium is described as a useful remedy for various human ailments including ulcers, wounds, inflammation, Rheumatism and gout, sciatica, bruises and swellings, fever, asthma, bronchitis and toothache. Many folk medicines use.

Pharmacological properties-The seeds of Datura are analgesic and anti-inflammatory, antihelmintic and anti-infective. They are used in the treatment of stomach and intestinal results from worms. Pain that results from infestation, toothache and fever from inflammation. The juices of its fruit are applied to the scalp to treat dandruff and falling hair.

Withania

Ethno Medicinal uses-The overall medicinal properties of withania somnifera make it a viable therapeutic agent for addressing anxiety, cancer, microbial infection, immunomodulation and neurodegenerative disorder.

Pharmacological properties-Lithospermum erythrorhizon contains a spectrum of diverse phytochemicals. Enabling it to have a broad range of biological implications. In preclinical studies, it has shown anti-stress, neuroprotective, cardioprotective, and anti-diabetic properties.

Hyoscyamus

Ethno Medicinal uses-It is used as treatment of stomach cramps, heavy coughs, asthma, neuralgia, and manic psychosis. The extract of Hyoscyamus has strong antibacterial and antifungal activities against enteric, Klebsiella pneumoniae and Candida albicans. In addition to analgesic and anti-inflammatory properties.

Pharmacological properties-Various experiments proved Antihistaminic, antimicrobial, antispasmodic, analgesic, anti-inflammatory, antiallergic and sedative properties of drug.

II. CONCLUSION

As talked about over, it appears that Solanaceae families contains a different run of alkaloids and incorporate Scopolamine, Atropine and hyoscyamine. These are the key alkaloids of this family. Habitations of these alkaloids make this family medicinally critical. Pharmacologically, these are the foremost effective known anticholinergics acting on parasympathetic apprehensive framework. But, in spite of the fact that they are restoratively parasympathomimetics; overdose may incorporate various adverse impacts like mouth dryness, expanded understudies, ataxia, urinary maintenance, visualizations, writhings, coma and death. So, dosage ought to be entirely chosen and observed. In spite of the extraordinary harmfulness of the tropanes, they are critical drugs when managed in suitable doses.

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