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A REVIEW ON HERBAL PLANTS USED IN DIURETICS

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ABSTRACT:

The medicinal herb has grown in use as diuretics have been employed. Diuretics are used to treat a number of diseases including hypertension, anxiety, cardiovascular problems, diabetes mellitus, and infections brought on by liver degradation because they speed up the flow of urine. These plants are more effective at treating infections than allopathic medicines because they are less toxic and moderately protected. In addition, several plant medications the bioactive extract engaged in the urination process, and their physiological profiles, which focus on the dose administered and, are covered in present research. This study may have marked a crucial turning point for the researchers' selection of medicinal plant for their study on diuretics.

KEYWORDS: Diuretic, Infection, Herbal, Ayurvedic

INTRODUCTION:

Drugs made from plants have been utilized for a very long period in every civilization on earth. When they recognize the topic as a true medical field, scientists and researchers have expressed a greater interest in it. Various therapeutic herbs that were utilized as diuretics in conventional folk medicine were discovered by our forebears. [1] Natural medications have recently become more significant and well-liked due to their price, effectiveness, and safety. [2] Ayurvedic texts list 120 or more plants as having diuretic qualities. The primary issue with herbs is that they just have one procedure and a few exercises that are very similar. The majority of illnesses characterized by edoema, such as nephritis, premenstrual pressure, hypertension, migraine, hyperkalemia, renal failure, and epilepsy, can benefit from diuretic enhancers that increase water outflow.[3]

MECHANISM OF ACTION OF DIURETICS:

Diuretics are crucial in the treatment of edoema and hypertension. This function primarily results in a net negative shift in the water and nutrient balance. About 50–66% of the fluid is reabsorbable by the proximal convoluted tubule through active and passive mechanisms. Osmotic water abstraction is possible because the Loop of Henle's thin descending limb is highly permeable to water and impermeable to solutes. The overall improved state of diuresis is mostly due to the decreased water absorption from the descending limb of the Loop of Henle. Since the ascending limb of the Loop of Henle is impervious to water and highly permeable to salt and chloride, diuretics have little impact on this part of the body. [4]

USAGE OF HERB AS DIURETIC:

Long used as a diuretic in India, this herb has gained popularity worldwide thanks to major pharmaceutical companies. A number of renal disorders were traditionally treated using plant medicine, and several plants have been found to have strong diuretic properties. Numerous researchers have shown that research on plants used in traditional medicine as diuretics has grown recently and may be helpful in the treatment of hypertension. One of the most serious consequences of diabetes mellitus is hypertension. [5]

SOME HERBAL PLANTS EXERTING DIURETIC PROPERTY:

Sr. No.	Plant name/ family	Part used	Ayurvedic name	Chemical constituents
1.	*Aerva lanata*, Amaranthaceae	Entire plant	Paashaanab-heda	Palmitic acid β-sitosterol, alpha- amyrin, alkaloids
2.	*Allium sativum*, Liliaceae	Bulbs	Lashuna	Sulphur containing amino acids known as alliin
3.	*Terminalia arjuna*, Combretaceae	Bark, leaves	Arjuna	Arjunolic acid, terminic acid, glycosides (arjunetin, arjunosides I–IV), and strong antioxidants, flavones, tannins, oligomeric proanthocyanidins
4.	*Azima tetracantha*, Salvadoraceae	Root and leaves	Mulchangan	Alkaloids- azimine, azcarpine, carpine
5.	*Benincasa hispida*, Cucurbitaceae	Roots, leaves, fruits	Kuushmaanda	Pentacyclic triterpene
6.	*Boerhaavia diffusa*, Nyctaginaceae	Roots	Punarnavaa	Xanthone,β-ecdysone, flavonoid, arbinofuranoside
7.	*Cichorium intybus, Compositae*	Entire herb	Kaasani	Citric and tartaric acids, acetic, lactic, pyruvic, pyromucic, palmitic and tartaric acids
8.	*Cocos nucifera, Palmae*	Fruit, husk	Naarikela	Reducing sugars
9.	*Cordia rothii, Boraginaceae*	Fruits	Laghu-shleshmaataka	Alkaloids

10.	*Erythrina indica, Papilionaceae*	Bark, leaves	Paaribhadra	Tetracyclic alkaloids
11.	*Moringa oleifera, Moringaceae*	Fruits and leaves	Shigru	Nitrile glycosides, niazirin niazirinin
12.	*Opuntia ficus indica, Cactaceae*	Fruits, flower, stem	Nagphana	Glycosides of isorhamnetin and quercetin, flavonols
13.	*Cuscuta reflexa, Convolvulaceae*	Entire plant	Amarvalli	Amarbelin and Kaempferol, stem gave cuscutin, cuscutatin, β-sitosterol, luteolin, bergenin kaempferol, alkaloids
14.	*Camellia sinensis, Theaceae*	Leaves	Chashakam	Xanthines (theophylline and theobromine), tannins, flavonoids, quercetin, kaempferol
15.	*Zea mays, Gramineae*	Leaves, fruit	Mahaa-Kaaya	Saponins, alantoin, β-sitosterol, glycoprotein

CORIANDER:

consists of dried, nearly ripe fruits from the Umbelliferae family plant Coriandrum sativum Linn.Coriander is most likely native to the nations of the eastern Mediterranean where it is a typical field weed. India, Egypt, Europe, China, Russia, and Bangladesh are among the countries that farm the plant extensively. This popular herb is frequently used in cooking for flavour and spice, whether it is fresh or dried. The flavour of coriander is nutty and citrusy. To utilise them in dishes like Thai curries, their seeds can be crushed or sautéed intact. As an alternative, its leaves can be added to cooked foods like rice. One study investigated the potential diuretic properties of coriander seeds.

Fig.No.1 Coriander

FENNEL:

Fennel is a Mediterranean-born herb that grows wild in parts of Europe and India. The plant Foeniculum vulgare, which is a member of the Apiaceae family, is used to make fennel. The roots and seeds may have diuretic qualities, while the bulb, seeds, and leaves are all edible. Fennel is frequently roasted and used in pasta dishes, soups, and bread baking. It has an anise or licorice flavour.

Fig.No.2 Funnel

DANDELION:

Around the world, dandelion leaves from the Asteraceae plant Taraxacum officinale are utilised in traditional medicine. Its leaves, roots, and flower are high in potassium and are thought to be safe to eat. Dandelion has an earthy, bitter flavour. Its greens can be boiled and added to a soup or herbal tea, sauteed like kale, or placed in a salad. Additionally, the leaf-derived extract can be taken orally as a capsule or as a drink.

Fig.No.3 Dandelion

RADISH:

It is made out of dried leaves and seeds from the Cruciferae family plant Raphanus sativus. It is grown all over India up to a height of 5000 metres, as well as in many other temperate and tropical nations. Muli is a common name for it. Medicine is made from seeds, roots, and leaves. According to the statement, "Radish is unpleasant hot in potency, aids in flavour, is digestive, reduces all three doshes, helps with voice, cures a high temperature, dyspnea, diseases of throat and vision, and is good for voice." Seeds are reported to possess emmenagogue properties in addition to a diuretic laxative, and lithnotriptic properties. It is believed that fresh root juice has powerful anti corbutic effects.

Fig.No.4 Radish

HORSE GRAM:

It is made up of the dried seeds of the Leguminosae family annual herb Dolichos biflorus, which is branching, suberect, or twining. It is widespread throughout India and is cultivated by seeds and vegetative means under the name Kulti. Seeds are employed in traditional medicine After digestion, horse gramme is pungent, astringent, diuretic, tonic that causes pitta and rakta disorders, hot in potency, and that alleviates dyspnea, cough, kapha and vata disorders, renal calculi, seminal stones, flatulence, rhinitis, create perspiration, reduces fat, and treats fever, it continues.

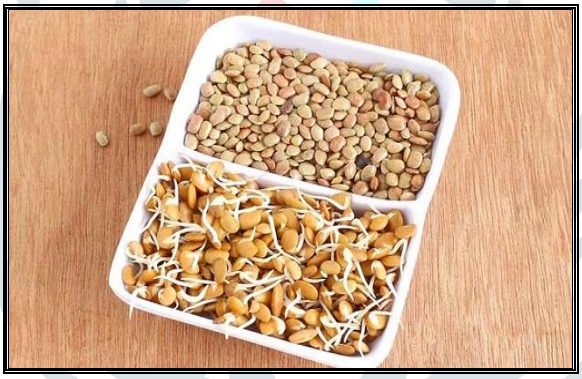

Fig.No.5 Horse gram

MANGIFERA INDICA:

The mango species Mangifera indica belongs to the Anacardiaceous family. It naturally grows in India, and cultivated varieties have been introduced to other warm regions. It is the tallest fruit tree in the world, with a height of up to 100 feet and a circumference that normally measures 12 to 14 feet but can occasionally exceed 20 feet [1]. Rats were used by Shree Devi to study the diuretic effects of Mangifera indica bark extract. They use ethanol, ethyl acetate, and a Mangifera indica water extract to examine the effectiveness of the diuretic. 250 mg of the extract per kilogramme of body weight was administered orally. The results of a diuretic investigation showed that the aqueous extract had a greater Na+/K+ ratio than the ethanol and ethyl acetate extracts. When compared to other extracts, the aqueous extracts have the strongest diuretic impact. [6].

Fig.No.6 Mangifera Indica

ACHYRANTHES ASPERA:

Ayurvedic practitioners have long utilised Achyranthes aspera Linn (Amaranthaceae), also known as Apamarga, as a weed to treat a variety of illnesses.Native Americans use the plant as a diuretic, spermicidal, cardiovascular, nephroprotective, antiparasitic, hypoglycemic, analgesic, and antipyretic. The diuretic efficacy of the Achyranthes aspera whole plant methanolic extract was examined in this study. Using furosemide as a reference medication, Lipschitz et al. developed a method to determine the diuretic impact. Although the diuretic effect in the treated rats was greater than in the control group, it was not as strong as that of furosemide. In both the treatment and control groups, a significant increase in renal clearance of sodium, potassium, and chloride ions was seen.

Fig.No. 7. Achyranthes Aspera

BIXA ORELLANA:

In the West Indies, tropical Asia, and Africa, the Bixa Orellana shrub or small tree is frequently planted for the seeds or as an ornamental. The name "lipstick tree" comes from the fact that American Indians have used the plant for a long time to manufacture body paint, particularly for the lips. Bixa leaf extracts have the strongest antibacterial efficacy against Bacillus pumilus and other Gramme positive pathogens. [11] Leishmaniasis and malaria have both been treated using bixa leaves. The dried leaf powder was subjected to many soxhlet extractions using petroleum ether, methanol, and water. These extracts were tested for diuretic activity in wister rats using a standard approach. Strong diuretic effects are produced by the methanolic extract of Bixa orellana's leaves, which boosts both the amount of urine produced and the excretion of sodium, potassium, and chloride. [12]

Fig.No.8 Bixa Orellana

EUPHORBIA THYMIFOLIA:

A small-branched, pubescent, perennial herb with a prostate, Euphorbia thymifolia (Euphorbiaceae), is also known as laghududhika or choti-dudhi. In worm infestations, the leaves, seeds, and fresh juice of the entire plant are used as stimulants and astringents. In comparison to the usual medication, fractions of the extract enhanced the diuretic activity. The phytoconstituents in the ethanolic extract of Euphorbia Thymifolia Linn may have contributed to the activities. [13]

Fig.No.9 Euphorbia Thymifolia

MIMOSA PUDICA:

The creeping annual or perennial herb Mimosa pudica, often called the sensitive plant or the sleeping plant, is frequently cultivated for its remarkable compound leaves, which, when disturbed or touched, droop and fold inward to shield the plant's young from attackers before emerging again a short time later. The native range of the species is in Central and South America. It primarily flourishes in shaded areas, underneath trees or bushes. Mimosa pudica Linn. Aqueous extract diuretic test. In albino rats that were fed properly, the Lipchitz test was used to analyze leaves. Aqueous extracts of M. pudica leaves were administered to the three test groups at doses of 100, 200, and 400 mg/kg, respectively. Whereas the control group was given 0.9% NaCl and the standard group was given furosemide. Calorimetry was used to analyse the biochemistry of urine. When administered at 100 mg/kg p.o., the aqueous extract of M. pudica leaves significantly increased electrolyte excretion. However, increasing the test drug's dose does not result in an increase in its diuretic activity. [7]

Fig.No.10 MIMOSA PUDICA

CONCLUSION:

The current review's objective is to provide an overview of the information that is currently known on the use of herbal drugs as diuretics. In current clinical practise, diuretics can be utilised as the initial course of treatment for hypertension patients. In both industrialised and developing countries, herbal medicines are highly sought after for because to their extensive biological and therapeutic action, higher safety margins, and cheaper costs, primary healthcare. The review includes information on the plant's botanical characteristics, which aid in plant identification, as well as its recorded behaviours and ethnobotanical uses. However, there have only been a few studies, so we suggest doing more to confirm the alleged actions. Such evidence is needed to back up the folkloric usage of traditional medicines scientifically, and it may even be helpful in developing novel drugs, treatments, and treatment recommendations. This investigation supports the notion that nature contains a number of plants with potent diuretic characteristics. Herbal medicines don't have toxicities or side effects like allopathic pharmaceuticals do. The current review aims to give an overview of the knowledge regarding the use of herbal medications as diuretics.

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