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NATURAL PLANTS EFFECTIVE IN TREATMENT OF SEXUAL DYSFUNCTION: A REVIEW

N.K. Saini*¹, M. Singhal¹, B. Srivastava², S. Sharma³

Affiliated to:

1. Department of Pharmacology, School of Pharmaceutical Sciences, Jaipur National University, Jagatpura, Jaipur-302025
2. Director, School of Pharmaceutical Sciences, Jaipur National University, Jagatpura, Jaipur-302025
3. Department of Pharmacy practice, School of Pharmaceutical Sciences, Manipal University, Manipal



For Email Click Here

ABSTRACT

Sexual dysfunction is very serious problem in human being. Inability to achieve normal sexual intercourse called sexual dysfunction, which include premature ejaculation, retrograded, retarded or inhibited ejaculation, erectile dysfunction, arousal difficulties (reduced libido), compulsive sexual behavior, orgasmic disorder, failure of detumescence in males and Desire disorders, Arousal disorders, Orgasmic disorders, Sexual pain disorders in females. The trends of herbal medicine is running in the market to cure specific diseases due to its less adverse drug reaction, toxicity and other injurious effects. There is huge variety of plant which capable to cure and treat specific type of disease. Researchers further studying to identify plant activity. Many plants have ability to correct sexual dysfunction in male and female. Among them some plants *Panax quinquefolius* L. (American ginseng), *Eurycoma longifolia*, *Corynanthe yohimbe*, *Maca*, *Ginkgo biloba*, *Turnera diffusa* (Damiana), *Terminalia catappa* L., *Tribulus terrestris*, *Euphorbia Hirta* L., *Passiflora incarnata* L., *Ptychopetalum olacoides*, *Cnidium monnier* have discussed in this article.

Keywords: Sexual Dysfunction(SD), Procreation (reproduction), Female sexual dysfunction (FSD), Desire (excitement phase), Arousal (plateau phase), Hypoactive sexual desire (HSD), Compulsive sexual behaviours (CSBs), Erectile dysfunction (ED).

INTRODUCTION

Procreation (reproduction) and sexual fulfilment of both partners is very important for good life. For life to continue, an organism must

reproduce itself before it dies. In *Homo sapiens*, reproduction is initiated by the mating of a male with a female in sexual intercourse which facilitates the coming together of sperm and egg for the purpose of fertilization. For there to

be a normal sexual intercourse and sexual fulfilment in males, the male sexual organs (the copulatory organ, the penis) and factors relating to erection must function normally. Inability to perform this function effectively is a major problem facing the reproductive process. This is known as sexual dysfunction.^{1,2} Women's interest in sex and responses to sexual stimulation vary widely. Although most women's sexual responsiveness peaks in the late 30s and early 40s, a woman can have satisfying sexual experiences throughout her life. The quality of her experiences is affected by individual differences, by life situation, by age and hormonal levels, and by overall health and well-being. A sexual problem is anything that interferes with a woman's satisfaction with a sexual activity. When this happens, it is often referred to by health professionals as female sexual dysfunction (FSD).

Sexual response cycle

Male

Erection- Erection is the enlarged and rigid state of the sexually aroused penis sufficient enough for vaginal penetration. It results from multiple psychogenic and sensory stimuli arising from imaginative, visual, auditory, olfactory, gustatory, tactile, and genital reflexogenic sources.

Ejaculation- Ejaculation is the act of ejecting semen. It is a reflex action that occurs as a result of sexual stimulation. It is made up of two sequential processes. The first process called emission is associated with deposition of seminal fluid into the posterior urethra while the second process is the true ejaculation, which is the expulsion of the seminal fluid from the posterior urethra through the penile meatus.

Orgasm- This is the climax of sexual excitement. The entire period of emission and ejaculation is known as the male orgasm.³

Detumescence- This is the subsidence of an erect penis after ejaculation.⁴

Female

Desire (excitement phase) - Desire is a sexual "charge" that increases interest in and responsiveness to sexual activity. You feel "in the mood." Your heartbeat and breathing quicken, and your skin becomes reddened (flushes).

Arousal (plateau phase) - Sexual stimulation--touch, vision, hearing, taste, smell, or imagination--brings about further physical changes. Fluids are secreted within the vagina, moistening the vagina, labia, and vulva. These fluids provide lubrication for intercourse. The vagina expands, and the clitoris enlarges. The nipples become hardened or erect.

Orgasm (climax) - At the peak of arousal, the muscles surrounding the vagina contract rhythmically, causing a pleasurable sensation. This is often referred to as the sexual climax.

Resolution - The vagina, clitoris, and surrounding areas return to their unaroused states. You feel content, relaxed, possibly sleepy.⁵

Male sexual dysfunction

Sexual dysfunction in men refers to repeated inability to achieve normal sexual intercourse. It can also be viewed as disorders that interfere with a full sexual response cycle. These disorders make it difficult for a person to enjoy or to have sexual intercourse. While sexual dysfunction rarely threatens physical health, it can take a heavy psychological toll, bringing on depression, anxiety, and debilitating feelings of inadequacy. Unfortunately, it is a problem often neglected by the health care team who strive

more with the technical and more medically manageable aspects of the patient's illness.⁶ Three fourths of 78 patients surveyed in another British general practice suffered from general sexual problems; 35% reported a specific sexual dysfunction, such as premature ejaculation or erectile dysfunction.⁷ Generally, a prevalence of about 10% occurs across all ages. Because sexual dysfunction is an inevitable process of aging, the prevalence is over 50% in men between 50 and 70 years of age.⁸ Sexual dysfunction takes different forms in men. A dysfunction can be life-long and always present, acquired, situational, or generalized, occurring despite the situation. A man may have a sexual problem if he:

- Ejaculates before he or his partner desires
- Does not ejaculate, or experiences delayed ejaculation
- Is unable to have an erection sufficient for pleasurable intercourse
- Feels pains during intercourse
- Lacks or loses sexual desire.

Male sexual dysfunction can be categorized as disorders of desire, disorders of orgasm, erectile dysfunction, disorders of ejaculation and failure of detumescence.

A. Disorders of desire: Disorders of desire can involve either a deficient or compulsive desire for sexual activity. Dysfunctions that can occur during the desire phase include:

(i) Hypoactive sexual desire (HSD), defined as persistently or recurrently deficient (or absent) sexual fantasy and desire for sexual activity leading to marked distress or interpersonal difficulty. It results in a complete or almost complete lack of desire to have any type of sexual relation.⁹

(ii) Compulsive sexual behaviours (CSBs) constitute a wide range of complex sexual behaviours that have strikingly repetitive, compelling, or driven qualities. They usually manifest as obsessive-compulsive sexuality (*e.g.* excessive masturbation and promiscuity), excessive sex-seeking in association with affective disorders (*e.g.* major depression or mood disorders), addictive sexuality (*e.g.* attachment to another person, object, or sensation for sexual gratification to the exclusion of everything else), and sexual impulsivity (failure to resist an impulse or temptation for sexual behaviour that is harmful to self or others such as exhibitionism, rape, or child molestation).¹⁰

B. Erectile dysfunction (ED): This is a problem with sexual arousal. ED can be defined as the difficulty in achieving or maintaining an erection sufficient for sexual activity or penetration, at least 50% of the time, for a period of six months.¹¹ It results in significant psychological, social and physical morbidity,¹² and annihilates his essence of masculinity.¹³

C. Disorders of ejaculation: There exists a spectrum of disorders of ejaculation ranging from mild premature to severely retarded or absent ejaculation. These include:

(i) Premature ejaculation which is the most common male sexual dysfunction¹⁴ and can be any of the following: a) persistent or recurrent ejaculation with minimum sexual stimulation that occurs before, upon, or shortly after penetration and before the person wishes it; b) marked distress or interpersonal difficulty; and c) the condition does not arise as a direct effect of substance abuse. Premature ejaculation and sexual desire disorders were the frequent reported problems in young adult males with adverse familial relationship.¹⁵

(ii) Painful ejaculation which results from side effect of tricyclic antidepressants¹⁶ is a

persistent and recurrent pain in the genital organs during ejaculation or immediately afterwards.

(iii) Inhibited or retarded ejaculation: This is when ejaculation does not occur at all.

(iv) Retrograde ejaculation: This is when ejaculation is forced back into the bladder rather than through the urethra and out of the end of the penis at orgasm.

D. Disorders of orgasm: Male orgasmic disorder is defined as a persistent or recurrent delay in, or absence of orgasm after a normal sexual excitement phase during sexual activity.⁹

E. Failure of detumescence: is a prolonged erection usually lasting for between 4 h or greater. It is painful and always unaccompanied by sexual desire despite the fact that it is often preceded by usual sexual stimuli. Diagnostic options for male sexual dysfunction include: patient's history which embodies medical history (evaluating historical events like chronic disease, pharmacological agents, endocrine disorders, surgeries and trauma), psychological history (assessing individual's upbringing relationships, early sexual experiences, inadequate sexual information and general psychological health), sexual history (to ascertain the time and manner of onset, its course, current status, and associated medical or psychological problems), physical examination (entails general and systemic evaluation, assessment of gonadal function, vascular competence, neurological integrity, and genital organ normalcy), diagnosis testing (include blood tests, vascular assessment, sensory testing and nocturnal penile tumescence and rigidity testing)¹⁷

Female sexual dysfunction:

There are 4 kinds of sexual problems in women.

- **Desire disorders** - When you are not interested in having sex or have less desire for sex than you used to.
- **Arousal disorders** - When you don't feel a sexual response in your body or you cannot stay sexually aroused.
- **Orgasmic disorders** - When you can't have an orgasm or you have pain during orgasm.
- **Sexual pain disorders** - When you have pain during or after sex.¹⁸

A medicinal plant can be described as any plant in which one or more of its organs contain substances that can be used therapeutic purposes or which are precursors for the synthesis of useful drugs.¹⁹ Enhancing healthy sexuality is possible with the use of natural plants and nutrients. There are several of natural herbal remedies that are effective and many of these work rather quickly, often within a few days.²⁰

***Panax quinquefolius* L. (American ginseng)**

Family of *Panax quinquefolius* L. (American ginseng) is Araliaceae.²¹ the American Ginseng is a plant which is grown in the East of North America and Canada . Its active components are similar to the Korean Ginseng. However, its principal active component is the ginsenosid Rb1 which lacks the sesquiterpenic alcohols of the Korean ginseng and has a sweet, slightly different taste.



***Panax quinquefolius* L. (American ginseng)**

This plant is well known and recognized for its revitalizing physical, mental and sexual properties, and is considered a primary adaptogen which helps the system to adapt to physical, chemical and biological stress.

Active Components:

The active components responsible for its medicinal effects are triterpenic saponins, 25 different types of which have been identified. They have the denomination ginsenosids R (Japan) or panaxosids A-F (Russia). They also contain watersoluble polysaccharides (panaxanos A-U), essential acids (panacene, limonene, terpineol, citral) and polyacetylenes (ginsenosins A-K, panaxinol and panaxitriol). Furthermore, phytosterols like beta-sitosterol. The principal active components - the ginsenosids - exist only in all kinds of ginseng. The Korean panax ginseng is the one which contains major concentrations of five of these ginsenosids, while panax quinquefolium contains principally two of these 5 ginsenosids.

Pharmacological Action:

1) Energizing Effect: The active components of ginseng link up with the beta-adrenergical recipients of the cell membrane, which activates the ways of transduction of the second messenger (AM Poiklic). Subsequently, the signal passes to the mitochondria to increase the activity of the malato-dehydrogenase, succinate dehydrogenase and citrate-synthetase (enzymes of the aerobic glycolysis or cycle of the tricarboxylic acids). This increases the generation of ATP and that way increases the energetic levels of the patient. The increase of aerobic glycolysis leads to an increase of the glucose consumption which results in a reduction of the glycemia levels

and clinical usefulness when treating diabetes mellitus.

- 2) Neurostimulating Action:** Prevents the memorial deficit by facilitating the liberation of acetylcholine of the hippocampus nucleus. Inhibition of the recapture of GABA, noradrenalin, dopamine, glutamate, and serotonin at brain level, which results in the stimulation of cognitive cerebral functions, improving the mental efficiency and the memory.
- 3) Improves the unspecific humoral immunity:** Induces the production of interferon and interleukins 1, 6, 8 and 12 and increases the cytotoxic activity of the antibodies. The immunomodulating activity is done by the production of nitric oxide. The quinqueginsine is a protein which inhibits the inverse transcriptase of HIV-1 and alpha and beta glucosidases that interfere in this virus infection.
- 4) Improves unspecific cellular immunity:** Improving the function of lymphocytes Th1 and increasing the number of cells that form colonies of granulocytes-macrophages, lymphocytes and neutrophils.
- 5) Antioxidant Effects:** Antioxidant effects due to the capture of free radicals and the stimulation of the hepatic glutathione peroxidase.
- 6) Hypoglycemic Actions:** Ginseng increases the insulin secretion due to the stimulation of the beta cells of the pancreas and regulates the formation of hepatic glycogen.

7) Cardiovascular Activity: The ginseng root has a hypotensory and hypertensive action which depends of the proportion of the different types of ginsenosids it contains, due to the fact that some show hypotensory and others hypotensive actions.

8) Cytotoxic Action: Anti-tumoral effect, probably due to the ginsenosids Rg3, Rg5, and Rh2. Clinical tests with American ginseng show its potential as a support for breast cancer treatment.

9) Anti-inflammatory Action: The phytosteroles inhibit the prostaglandin synthetase, reducing the conversion of arachidonic acid into prostaglandin E which interferes in the inflammatory process.

10) Hypolipemiatic Effect: The ginsenosids show antioxidant properties reducing the oxidizing of the LDL. The ginseng root stimulates the lipoprotein-lipase, an enzyme which reduces he levels of kilomicros and VLDL in the blood and therefore of cholesterol and triglycerides.²²

American ginseng improve sexual dysfunction such as anorgesmia and decreased libido in patients.²³

Eurycoma longifolia

Eurycoma longifolia Jack, also known as Tongkat Ali in Malaysia, is a shrub-tree that grows in Malaysia, Burma, Indochina, Thailand, Sumatra, Borneo, and the Phillipines.²⁴ It is traditionally used primarily as an aphrodisiac and for improving general health.²⁵ Other traditional uses include treatment of aches, persistent fever, malaria, dysentery, glandular swelling,

bleeding (as a coagulant), edema, hypertension, syphilitic sores, and ulcers.^{26,27}



Eurycoma longifolia

A large variety of constituents have been identified, including quassinoids, canthin-6-one alkaloids, beta-carbolines, tirucallane-type triterpenes, squalene derivatives, and biphenylneolignans.²⁵

Uses

Tongkat Ali is primarily used as a male aphrodisiac. In Malaysia, it used to increase virility and sexual prowess and is claimed to improve strength and power during sexual activities.^{25,28} Many animal studies, both in rats and mice, have found administration of *E. longifolia* extracts to increase sexual arousal and motivation and frequency of sexual activity.^{25,28,29} These effects are similar to those caused by administration of testosterone, although the effect of Tongkat Ali is not as strong.²⁸ There are no human studies published in peer-reviewed journals yet, although there are many anecdotal reports that would indicate that the aphrodisiac qualities are retained in humans.

A related property that Tongkat Ali is reputed to have is a testosterone-increasing effect.²⁵ Tongkat Ali does have androgenic effects in male rats, either directly or indirectly, such as increasing the weight of sexual accessories.^{28,30} In vitro, ethanolic extracts of *E. longifolia* increase hCG-induced production of testosterone by rat Leydig cells.²⁶ There are many anecdotal reports on the internet where people indicate that they had testosterone levels tested before and during Tongkat Ali supplementation, and it caused an increase. The present evidence indicates that this is a likely property of this plant, but how great the effect is, dose-dependency, and whether or not it contributes significantly to the aphrodisiac qualities of Tongkat Ali can only be established with more research. Until then, Tongkat Ali should not be treated as a reliable way to increase testosterone levels. Many other possible benefits have been identified in experimental studies. An animal study found that Tongkat Ali had anxiety-reducing effects in the open field, elevated plus-maze, and antifighting tests.³¹ It also has antimalarial activity in vitro, an effect which is due to multiple constituents of the plant, and which multiple studies have replicated.²⁶ In an animal study, Tongkat Ali had the ability to improve survival in infected animals, but the effective dose was near-toxic. It was commented that the history of human use as an antimalarial agent may be explained by differences between rodents and humans which causes the toxic effect to be reduced in the second group, but studies are needed to confirm this.³² Tongkat Ali also has an anticancer effect against multiple cancer cell lines and is effective against multiple parasites in vitro.^{25,33}

Corynanthe yohimbe

Family of *Corynanthe yohimbe* is Rubiaceae.³⁴ Orally, yohimbe is used as an aphrodisiac, for impotence, exhaustion, angina, hypertension, diabetic neuropathy, and postural hypotension. *Yohimbe* is also used for general sexual dysfunction in men and women, sexual dysfunction caused by selective-serotonin reuptake inhibitors (SSRI), and as an adjunct to conventional antidepressants for refractory depression. *Yohimbe* bark is also smoked or snuffed for its hallucinogenic effects.



Corynanthe yohimbe

Common Use: Yohimbe contains an active compound called Yohimbine, this compound has now been isolated and synthesized by a pharmaceutical company and is prescribed in the treatment of impotence. It has traditionally been used as an aphrodisiac and in fact Yohimbine is the only thing you'll find in the Physicians Desk Reference where the word aphrodisiac is used. Indicated in Parkinson's disease, impotence and lack of libido, yohimbe is a rich source of alkaloids which can block the uptake of neuro-transmitters at Alpha-2

receptor sites and has also been used in dieting and weight management programs. 5 to 15 drops 2-3 times daily for 2-4 weeks and 1 hour before needed. Not recommended if nursing or pregnant. May be contraindicated in vascular disease, kidney disease and diabetes.³⁵

Maca

Family of *Maca* is Brassicaceae.³⁶ *Maca* (*Lepidium peruvianum* Chacon) is a root-like vegetable shaped like a radish that grows high in the harsh climate of the Andes Mountains in South America at elevations up to 15,000 feet. For more than two millennia, native Peruvians have used maca as food and medicine, to promote endurance, balance hormones and improve sexual interest and fertility.



Maca

Supplementing with Maca has been shown to be helpful with the following:

- **Menopausal symptoms:** hot flashes, night sweats, sleeplessness and emotional upsets, "brain fog" and vaginal dryness.

- **Osteoporosis:** promotes significant bone rebuilding and improvement in bone density.
- **Energy booster:** Balances the endocrine system - thyroid, pituitary and adrenal glands.
- **Period problems:** Pain, PMS, flooding and/or scant flow

- Increase Libido in men and women
- Male impotence
- Chronic Fatigue Syndrome
- Increase endurance and stamina in athletes
- Reduce Depression
- Re-Ignite Your Natural Sex Drive and Desires
- Promote Mental Clarity³⁷

Ginkgo biloba

The *Ginkgo biloba* (GB) tree, also known as maidenhair tree is the sole representative of once flourishing botanical division, that of the so called Ginkgophytes. The leaves are recommended as being beneficial to the heart and lungs; inhalation of decoction of leaves is used in bronchial asthma.³⁸ Extracts of the leaves of GB have been used for cerebral insufficiency due to degenerative or vascular causes, to improve learning and memory, peripheral vascular diseases, as cardioprotective and many other diseases.³⁹⁻⁴¹ GB exhibits a variety of interesting pharmacological properties such as oxygen free radical scavenging activity, cyclonucleotide phosphodiesterase inhibition, membrane stabilising effect, increase in blood fluidity and improvement in cognitive function.^{39,40,42,43}



Ginkgo biloba

In an open trial ginkgo biloba, an extract derived from the leaf of the Chinese ginkgo tree and noted for its cerebral enhancing effects, was found to be 84% effective in treating antidepressant-induced sexual dysfunction predominately caused by selective serotonin reuptake inhibitors (SSRIs, N = 63). Women (n = 33) were more responsive to the sexually enhancing effects of ginkgo biloba than men (N = 30), with relative success rates of 91% versus 76%. Ginkgo biloba generally had a positive effect on all 4 phases of the sexual response cycle: desire, excitement (erection and lubrication), orgasm, and resolution (afterglow). This study originated from the observation that a geriatric patient on ginkgo biloba for memory enhancement noted improved erections.⁴⁴

***Turnera diffusa* (Damiana)**

Family of *Turnera diffusa* is Turneraceae.

Overview

Damiana, original from Central America, is a small perennial shrub; growing up to 3 – 6 feet (1 – 2meters)tall.The leaves are serrate and aromatic; smooth on the top side, glabrous with a few hairs on ribs underneath. The stems are

erect with the small yellow flowers rising from the leaf axils which produce small sweet smelling fruits. The seed capsule is one-celled splitting into three pieces, exposing 3 to 6 kidney-shaped seeds. Leaves from this plant are used as a tea substitute and as a flavoring in liqueurs. Damiana is on the FDA list for GRAS (generally recognized as safe) and is often used as a food flavoring.

It is claimed that smoking this herb induce a marijuana-like legal "high" and euphoria. When smoked, the effects last up to 90 minutes; taken as a tea, the effects are more milder, but last longer.



Turnera diffusa

Constituents

Leaves contain up to 1% volatile oil consisting of 1,8-cineole, p-cymene, alpha- and beta-pinene, thymol, alpha-copaene, and calamene. Dry matter of the leaf includes a bitter substance (damianin), tannins, flavonoids, beta-sitosterol, and glycosides (gonzalitoin, arbutin, and tetraphyllin B).⁴⁵

Uses

Damiana has been used for improving sexual function.⁴⁶

Terminalia catappa L.

Family of *Terminalia catappa L.* is combretaceae. A tall, semi-deciduous, erect, medium to large sized tree 10 to 25 m tall. Trunk is usually straight and more or less cylindrical but it may also be crooked and leaning. Bark is grey brown coloured, smooth in young trees, rough with age. In younger trees branches are almost horizontal and erect and arranged in tiers, giving the tree a pagoda like shape, which becomes less noticeable as the branches elongate and droop at the tips. Leaves are single, alternate, obovate in shape, large (15 to 36 cm long and 8 to 24 cm wide) and spirally clustered at the tips. Leaves are dark green above, pale below, leathery and shiny; before dropping leaf colour changes to yellow and red. Flowers are small, white or cream coloured, five lobed and arranged on long axillary spikes. There are no petals. Majority of the flowers are male and bisexual flower are located towards the base of spikes. Fruit is a sessile, laterally compressed, oval-shaped drupe. Fruit colour changes from green in young to dark purplish red at full maturity. Rind of the fruit is light, pithy or corky tissue and float in the sea and thus dispersed by ocean currents. Each fruit contain a cream-coloured seed, which encloses the kernel (nut).⁴⁷



Terminalia catappa L.

Terminalia catappa L. have aphrodisiac action (prolongation of ejaculation latency).⁴⁸

Tribulus terrestris

Family: Zygophyllaceae⁴⁹

Introduction: Tribulus is cooling, sweet and strengthening. It is common throughout India and found to be growing as weed along roadside and waste places.

Plant Description: Tribulus is a prostrate, annual herb grows upto 90 cm in length with paripinnate leaves. The flowers are small, yellowish, and solitary. The fruits of tribulus are typically five angled and spinous.



Tribulus terrestris

History: The name "Gokshura" signifies "cow hoof" from its resemblance of the cocci when adhering together in pairs. It is also called "Ikshugandha" for its aroma which resembles the sugarcane. The entire plant but especially the fruit and roots are used in Ayurvedic formulations for Urinary disorders, calculus formation, impotence and other UTI issues.

Chemistry: The fruits of Tribulus contain alkaloids, resins, tannins, sugars, sterols, essential oil, peroxidase, diastase and glucoside.

Action & Uses of Tribulus:

- Tribulus is non-irritant diuretic and urinary antiseptic. It is used in case of dysurea, urinary stone and incontinence of urine.
- Tribulus Terrestris is used in various herbal formulas to treat headaches, eye problems such as itching, conjunctivitis and weak vision, and nervousness. It is also used to treat high blood pressure and rib pain.
- The hormone balancing effects of Tribulus Terrestris for women makes this herb suitable for premenstrual syndrome and menopausal syndrome.
- Tribulus contains Sterols like betasitosterols or stigma. These substances protect the prostate from swelling and in combination with the X steroidal saponins, protect the prostate from cancer.
- Tribulus is used in case of impotence and spermaturia as it helps to increase the level of the luteinizing hormone in the body and improved the synthesis of the testicular male sex hormone. So it is being aphrodisiac in nature.
- Traditionally use of Tribulus is found to be effective in case of gout.^{50,51,52}

Euphorbia Hirta L.

Euphorbia Hirta L. belongs to Family Euphorbiaceae.⁵³ In East and WestAfrica extracts of the plant are used in treatment of asthma and respiratory tractinflammations. It is also used for coughs, chronic bronchitis and other pulmonary disorders in Malagasy. The plant is also widely used in Angola against diarrhoea and dysentery, especially amoebic dysentery. In Nigeria extracts or exudates of the plant are used as ear drops and in the treatment of boils, sore and promoting wound healing.⁵⁴



Euphorbia Hirta L.

A small, erect or ascending annual herb reaching up to 50 cm, with hairy stems. The leaves are opposite, elliptical, oblong or oblong-lanceolate, with a faintly toothed margin and darker on the upper surface. The flowers are small, numerous and crowded together in dense cymes about 1 cm in diameter. The fruits are yellow, three-celled, hairy, keeled capsules, 1-2 mm in diameter, containing three brown, four-sided, angular, wrinkled seeds.⁵⁵

Phytochemistry:

Flavonoids: Euphorbianin, leucocyanidol, camphol, quercitrin and quercitol.^{56,57}

Polyphenols: Gallic acid, myricitrin, 3,4-di-O-galloylquinic acid, 2,4,6-tri-O-galloyl-D-glucose, 1,2,3,4,6-penta-O-galloyl- β -D-glucose.^{58,59}

Tannins: Euphorbins A, B, C, D, E.⁶⁰

Triterpenes and phytosterols: β -Amyrin, 24-methylenecycloartenol, and β -Sitosterol.⁶¹

Alkanes⁶²

Traditional and modern usage:

The plant has been used for female disorders but is now more important in treating respiratory ailments, especially cough, coryza, bronchitis and asthma. In India it is used to treat worm infestations in children and for dysentery, gonorrhoea, jaundice, pimples, digestive problems and tumours.⁶³

***Passiflora incarnata* L. - Passion Flower**

Family - *Passifloraceae*

Stems - Vining, glabrous to minutely pubescent, herbaceous. Tendrils present.

Leaves - Alternate, 3-lobed, serrulate, petiolate, to +15cm long, +13cm wide, glabrous. Petioles with two glands near base of leaf blade.

Inflorescence - Single pedicillate flowers from leaf axils.

Flowers - Very interesting. This flower exhibits a corona which is a structure of appendages situated between the corolla and stamens. In the picture the corona is the ringlike structure of purple and white appendages above the petals and sepals. Flower is typically 6-7cm broad. Petals 5, sepals 5, purplish to whitish, similar, alternating. Styles 3. Stamens typically 5. Sepals 5, greenish-white, with a terminal appendage.

Fruit - Fleshy, ovoid to globose, green at first, yellowish-red at maturity.

Flowering - June - September.

Habitat - Thickets, disturbed sites, waste ground, roadsides, railroads. Also cultivated.

Origin - Native to U.S.⁶⁴



***Passiflora incarnata* L. - Passion Flower**

The aphrodisiac properties of the methanol extract of leaves of *passiflora incarnata* Linn. have been evaluated in mice by observing the mounting behavior. The methanol extract of *Passiflora incarnata* exhibited significant aphrodisiac behavior in male mice.⁶⁵

Ptychopetalum olacoides

Family of *Ptychopetalum olacoides* is *Olacaceae*⁶⁶.

Early researchers discovered that the root and bark were rich in fatty acids and fatty acid esters (the main one being behenic acid), essential oils (including beta-caryophyllene and alpha-humulene), plant sterols, triterpenes (including lupeol), and a new alkaloid-which they named *muirapuamine*. Scientists resumed researching the plant's constituents and pharmacological properties in the late 1960s and continued into the late 1980s. These studies indicated that the active constituents also included free long-chain fatty acids, sesquiterpenes, monoterpenes, and novel alkaloids.



Ptychopetalum olacoides

The main plant chemicals found in *Muirapapuama* include: alpha-copaene, alpha-elemene, alpha-guaiene, alpha-humulene, alpha-murolene, alpha-pinene, alpha-resinic acid, alpha-terpinene, arachidic acid, allo-aromadendren, behenic acid, beta-bisabolene, beta-caryophyllene, beta-pinene, beta-resinic acid, beta-sitosterol, beta-transfarnesene, borneol, campesterols, camphene, camphor, car-3-ene, caryophyllene, cerotic acid, chromium, coumarin, cubebene, delta-cadinene, dotriacontanoic acid, elixene, ergosterols, eugenol, essential oils, gamma-murolene, hentriacontanoic acid, heptacosanoic acid, lignoceric acid, limonene, linalool, lupeol, melissic acid, montanic acid, muirapuamine, myrcene, nonacosanoic acid, para-cymene, pentacosanoic acid, phlobaphene, stigmasterols, trichosanic acid, and uncosanic acid.

Use

Historically, all parts of *Muirapapuama* have been used medicinally, but the bark and roots are the most-utilized parts of the plant. It has long been used in the Amazon by indigenous peoples for a number of purposes. Native peoples along the Brazilian Amazon's Rio Negro river use the stems and roots from young plants as a tonic to treat neuromuscular problems; a root decoction is used in baths and massages for treating paralysis and beri-beri; and a root-and-bark tea is taken to treat sexual debility, rheumatism, grippe, and cardiac and gastrointestinal weakness. It's also valued there as a preventive for baldness. In Brazilian herbal medicine, *Muirapapuama* still is a highly-regarded sexual stimulant with a reputation as a powerful aphrodisiac. It has been in the *Brazilian Pharmacopoeia* since the 1950s. It is used as a neuromuscular tonic for weakness and paralysis, dyspepsia, menstrual disturbances, chronic rheumatism

(applied topically), sexual impotency, grippe, and central nervous system disorders.

Muirapapuama is employed around the world today in herbal medicine. Early European explorers noted the indigenous uses and the aphrodisiac qualities of *Muirapapuama* and brought it back to Europe, where it has become part of herbal medicine in England. It is still listed in the *British Herbal Pharmacopoeia* (a noted herbal medicine source from the British Herbal Medicine Association); it is recommended there for the treatment of dysentery and impotence. It is also used in Europe to treat impotence, infertility, nerve pain, menstrual disturbances, and dysentery. In Germany, *Muirapapuama* is employed as a central nervous system tonic, for hookworms, menstrual disturbances, and rheumatism. *Muirapapuama* has been gaining in popularity in the United States, where herbalists and health care practitioners are using it for impotence, depression, menstrual cramps and PMS, nerve pain, and central nervous system disorders.⁶⁷

Cnidium monnieri

Family of *Cnidium monnieri* is *Umbelliferae* (carrot) - *Apiaceae* (parsley)⁶⁸ *Cnidium monnieri* is a Chinese herb that has been used for centuries in Traditional Chinese Medicine (TCM) as an herbal anti-itch lotion and *remedy for a variety of skin ailments* and as a *reproductive aid* and *aphrodisiac that increases sexual desire in both men and women*. Today, we are told that it assists the body in producing nitric oxide, which relaxes smooth muscles and works to *encourage healthy sexual function*, and it has been used to *treat male sexual dysfunction*. It also shows promise in the areas of osteoporosis, allergies and carcinoma research.



Cnidium monnieri

Uses:

Cnidium monnieri has been used for over a thousand years in Traditional Chinese Medicine for its positive effect on the libido. It is considered a reproductive aid and aphrodisiac. The seeds are said to be a natural libido booster; and in the treatment of male sexual dysfunction and impotence, it apparently, helps to relax the corpus cavernosa of the penis (the chambers in the penis that fill with blood during an erection), allowing blood to flow freely and helping to produce an erection. Moreover, it is said to increase the release of nitric oxide, a substance that is important for stronger, longer-lasting erections. Nitric oxide activates enzymes that make the substance, cyclic Guanosine Monophosphate (cGMP), which relaxes the muscles around the genital area and allows the penis to swell. The herb is also thought to inhibit PDE-5, an enzyme that can stop or reverse an erection, allowing erections to be sustained for longer periods of time. Cnidium Monnieri is said to produce an action similar to sex hormones, prolonging and

reviving the copulation period, increasing the weight of the uterus and ovary, prostate gland and testicle. Cnidium is also believed to assist in cases of premature ejaculation.

Further supporting Cnidium monnieri's role in urogenital health, it is said to act as a libido booster for women as well. The nitric oxide that helps to relax the muscles around the genital area in men also allows blood to flow to columns of erectile tissue forming the body of the clitoris in women, allowing the clitoris to swell. It is also thought to help in cases of frigidity and female sterility.

Cnidium monnieri shows promise in the area of treatment for serious disease and is currently being researched for the cytotoxic activity of its coumarins (osthol, imperatorin, bergapten, isopimpinellin and xanthotoxin) on leukemia cell lines. In laboratory tests, an extract of *C. monnieri* exhibited strong effects on human leukemia (HL-60), cervical carcinoma and colorectal carcinoma. The coumarin, osthol, demonstrated the strongest cytotoxic (cell killing) activity on tumor cell lines; however, imperatorin showed the highest sensitivity to leukemia. Both osthol and imperatorin showed DNA fragmentation and PARP degradation in leukemia (HL-60) cells.

In the treatment of skin ailments, Cnidium monnieri has been used to treat itchy, "wet" skin conditions, eczema, scabies and acne. It is considered an antiseptic, antifungal, antiviral and astringent, which may account for its efficacy in treating these ailments. When used topically, it is said to be excellent for vulval and vaginal itching and infections (including trichomonas vaginitis, eczema of external genitalia and leukorrhoea), abscesses and

ringworm and is commonly found in lotions, creams and ointments in China.

Cnidium monnier shows promise in the management of allergies. In studies conducted in Kinki University of Osaka, Japan, an extract obtained from the dried fruits showed inhibitory effects on contact dermatitis in laboratory animals. The coumarin derivative, osthol, is said to be the active ingredient that was mainly responsible for anti-allergic effects, and it is believed that Cnidium monnier may be useful as an agent that inhibits allergic diseases.

In the treatment of osteoporosis, three coumarins in Cnidium monnier (osthol, bergapten and imperatorin) were isolated, and in laboratory tests, osthol, a major pharmacologically active constituent, significantly promoted osteoblastic cells' activity. These are the cells found in bone whose function it is to form the tissue and minerals that give bone its strength. These results have suggested that extracts from this herb may have potential benefit against osteoporosis.

Cnidium monnier is considered a warming tonic herb in China that exerts a gentle strengthening effect on the entire body by restoring enfeebled function and promoting vigor and a sense of well-being. Tonic herbs restore and strengthen individual organs and the entire system. As a bitter, it is thought to stimulate the digestive process and relieve indigestion and flatulence.

Other beneficial uses credited to Cnidium monnier include relieving the symptoms of asthma, relieving colds, reducing internal dampness, lumbago due to attack of damp and improving kidney energy.⁶⁹

CONCLUSION

Natural plants have variety of chemical constituents and they have ability to treat any specific disease. Herbal drug administration cause less side-effects and toxicity. There are some diseases are very dangerous like cancer, tuberculosis, sexual dysfunction, hepatitis and Swine flu etc. their uniform treatment is difficult with Allopathic medicine due to higher side-effect and other toxicity. Treatment of sexual disease are very challenging, So Researchers trying to get more and more natural plants have ability to treat sexual disease. Among them some plants are discussed in this article. Further study of these plants may be helpful in field of effective treatment of sexual dysfunction.

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