

Ayurvedic Remedies for Erectile Dysfunction

Dr.D.R.Mali^{1*}, Aryan Sonawane², Aniruddha Shejwal³, Kalash Tatiya⁴ and Pratiksha Musale⁵

**Assistant Professor Dept. Of Pharmaceutical Chemistry, Ges's Sir Dr. M.S Gosavi College of Pharmaceutical Education & Research, Nashik, Maharashtra, India*

²³⁴⁵Students, Ges's Sir Dr. M.S Gosavi College of Pharmaceutical Education & Research, Nashik, Maharashtra, India

¹dhanashirmali@gmail.com, ²aryansonawane1510@gmail.com,

Abstract:

Male impotence, often known as erectile dysfunction (ED) is defined as the inability of a man to achieve and maintain an erection sufficient for mutually satisfactory intercourse with his partner. ED is one of the most significant stress and lifestyle-related diseases. The main causes of this condition include overexertion, physiological abnormalities, decreased hormone levels, and damaged relationships with partners. Ayurveda provides natural medications with efficacy that have been established for the treatment of erectile dysfunction in addition to prescription therapy and food control plans. The chapter on "Rasayana" and "Vajikaran" in ancient medical literature, particularly Ayurveda, mentions various natural medications that can be used singly or in combination to treat these types of illnesses. One of them that have been traditionally utilized to increase sexual strength is garlic. In addition to meditation and self-belief, psychotherapy may also show to be a very effective treatment for this illness. Garlic is a drug of preference in comparison to Viagra and is also socially acceptable. It's possible that a preparation of odorless garlic has the ability to treat erectile dysfunction. This review will discuss the current research done on the natural herbal aphrodisiacs and evaluate the weight of evidence to support the use of any of these substances to enhance sexual desire and function. The present review, describes the detail information about the major constituents and their medicinal importance found in naturally occurring plants, which are helpful to further development of pharmaceutical formulations.

Keywords: Ayurveda, Erectile dysfunction, Male impotence, Garlic, Herbal medicine, Vajikaran, Rasayana.

Introduction:

Erectile dysfunction affects the lives of million's men and their partners. Erectile dysfunction (ED) or impotence is the inability of a man to achieve or maintain an erection sufficient for his sexual needs or the needs of his partner. [1]

Ayurveda defines erectile dysfunction or ED as follows:

Sankalpapravano nityam priyaam vashyaamapi sthreeyam || na yaathi lingashaithilyaath kadaachidyaathi vaa yadi | Shwaasaarthaha swinnagaatrshcha moghasankalpacheshhitaha || mlaanashishnashcha nirbeejaha syodetat klaibyalaxanam | [1]

Physiology of Erection:

There is a wide range of reactions involved in muscular erection in which nitric oxide (NO) is used. The cavernous body, the erectile tissue, as well as the spongy body form the body of the penis, and an erection involves dilation of the penile arteries and blood in turn flows and fills the voids of the erectile tissue. NO is the main penile vasodilator. NO activates Guanylyl Cyclase, present in cell membranes, increasing the level of Cyclic Guanosine Mono Phosphate (CGMP) resulting in relaxation of the smooth muscles of the corpus cavernosum, thereby allowing blood flow. (1, 2) In Ayurveda, the following is a description of the physiology of erection and ejaculation:

Vrishunow frohimedram cha naabhyuuru vankshnow gudam | Apanasthaanamantrasthaha shukra mootra shakrunti father || [1]

Drugs for Erectile Dysfunction:

Erectile dysfunction (ED) refers to a man's inability to achieve and maintain an erection sufficient to permit sexual intercourse. It mainly occurs after middle age and is common after age 65. Various vascular, neurological, hormonal, pharmacological or psychological causes may be the basis of the disorder.

Aphrodisiac increases blood flow to the penis and dilates the cavernous sinuses so that they fill with blood making the penis erect, elongated and erect. Nitric oxide is released by non-adrenergic non-cholinergic parasympathetic nerves (NANCs) and vascular endothelium is the main transmitter causing relaxation of the smooth muscle of the cavernous body and the blood vessels supplying it; Ach and PG also play a certain role. Various types of mechanical devices/prostheses and surgeries have been used to treat erectile dysfunction, but drug therapy has recently had a major impact. [2]

- **Androgens:** Hypogonadism is an uncommon cause of erectile dysfunction. Injectable testosterone esters or transdermal testosterone therapy are only effective when androgen deficiency is proven to be the cause of loss of libido and erectile dysfunction.[2]

- **Phosphodiesterase-5 (PDE-5) inhibitors:** This class of drugs has become the first-line treatment for erectile dysfunction. Nitric oxide induces smooth muscle relaxation by inducing intracellular CGMP, which promotes dephosphorylation of myosin light chain kinase (MLCK) so that myosin does not interact with actin. Inhibition of cavernous smooth muscle and blood vessels leads to accumulation of CGMP and a pronounced NO

effect. Sildenafil, tadalafil and vardenafil are selective PDE-5 inhibitors that have been shown to be effective in the majority of patients with erectile dysfunction. [2]

- **Sildenafil** is an orally active drug, marketed in the United States in 1995 and 2 years later in India, for the treatment of ED. It became an instant hit and received a global response. Sildenafil works by selectively inhibiting PDE-5 and enhancing NO activity in the corpus cavernosum. The glow of the penis during sexual stimulation is enhanced, but it has no such effect in the absence of sexual activity. It causes no confusion in most recipients.

- **Adverse Reaction:** Mainly due to vasodilatation associated with PDE-5 inhibition, headache, nasal congestion, dizziness, flushing and hypotension, and loose movements. As a result, impaired color vision, especially blue-green discrimination, occurs in some recipients.

Sildenafil: This is contraindicated in patients with coronary heart disease and those taking nitrates. Although sildenafil remains effective for less than 8 hours, nitrates should be avoided for 24 hours with caution in liver or kidney disease, peptic ulcer, bleeding disorder. [2]

Tadalafil: This is a more potent and longer acting sildenafil congener; $t_{1/2}$ 18 hours and duration of action 24 - 36 hours. Maximum plasma concentrations are reached between 30 and 120 minutes; Time to act may be longer. Side effects and contraindications are the same as sildenafil. In addition, back pain was reported to be due to tadalafil inhibiting PDE II to some extent. [2] **DOSAGE:** 10 MG AT LEAST 30 MIN BEFORE JOIN (MAX 20 MG) MEGALIS, TADARICH, TADALIS 10, 20 mg tablets, MANFORCE 10 mg each

Erection therapy papaverine/phentolamine-induced phalloplasty (PIPE): Injection of papaverine (3 - 20 mg) with or without phentolamine (0.5-1 mg) into the cavernous body luminesce the penis to permit intercourse. However, the procedure requires skill and training. Priapism occurs within 2 to 15 weeks and, if not treated quickly, can lead to permanent damage. It is reversed by aspiration from the cavernous body or local injection of phenylephrine. Complications are: localized hematoma, infection, paresthesia and penile deviation [2]

Prostaglandin E1 Alprostadil (PGE1): Injected directly into the cavernous body with a fine needle produces an erection lasting 1 to 2 hours to permit sexual intercourse. Alprostadil injection is less painful than papaverine, but local pain may occur. Penile fibrosis and foreskin stenosis are rare. An enteral lozenge called the Medicated Urethral Erection System (MUSE) was developed to avoid intravenous injection, but is less effective and can cause burns. [2]

Pathophysiology of Erectile Dysfunction:

Many classifications have been proposed for ED. Some are based on the cause (diabetic, iatrogenic, traumatic) and some on the neurovascular mechanism of the erectile process (failure to initiate [neurogenic], failure to fill [arterial], and failure to store [venous]). A classification recommended by the International Society of Impotence Research is shown below.

CLASSIFICATION OF MALE ERECTILE DYSFUNCTION**Organic****1. Vasculogenic:**

- A. Arteriogenic**
- B. Cavernosal**
- C. Mixed**

2. Neurogenic**3. Anatomic****4. Endocrinologic****Psychogenic****1. Generalized****A. Generalized unresponsiveness:**

- 1. Primary lack of sexual arousability
- 2. Aging-related decline in sexual arousability

Generalized inhibition:**1. Chronic disorder of sexual intimacy****2. Situational****A. Partner-related**

- 1. Lack of arousability in specific relationship
- 2. Lack of arousability owing to sexual object preference
- 3. High central inhibition owing to partner conflict or threat

B. Performance-related

- 1. Associated with other sexual dysfunction/s (e.g. rapid ejaculation)
- 2. Situational performance anxiety (e.g. fear of failure)

C. Psychological distress or adjustment-related

Associated with negative mood state (e.g. depression) or major life stress (e.g. death of partner) [3]

Psychogenic:

The limbic system, cerebral cortex, and hypothalamus regulate sexual behaviour and penile erection. As a result, the erection centres in the spine can receive stimulating or inhibiting signals to help or prevent an erection. Two potential explanations have been put

forth to explain erectile inhibition in mental dysfunction: High levels of peripheral catecholamines, excessive sympathetic outflow, or direct inhibition of the erection centre of the spinal cord by the brain can increase penile smooth muscle tone and prevent the slack required for an erection. Clinical studies have shown that patients with psychogenic erectile dysfunction have higher serum norepinephrine concentrations than healthy controls or patients with vascular erectile dysfunction. [3]

Neurogen: It is estimated that 10 to 19% of ED has a neurological origin. Since neuropathy does not rule out other causes, it can be difficult to confirm that erectile dysfunction has a neurological origin. Because an erection is a neurological event, dysfunction can result from any illness or condition that affects the brain, spinal cord, cavernous body, or dorsal nerves. [3]

MPOA, paraventricular nucleus, and hippocampus are considered important integrative centers for sexual desire and penile erection. The parkinsonian effect might result from an imbalance of dopaminergic pathways. Other brain lesions associated with erectile dysfunction are tumors, dementia, Alzheimer's disease, Shy-Drager syndrome, and trauma. [3] **ENDOCRINOLOGY:** Androgen has a significant impact on libido and sexual behaviour, as well as the growth and development of the male reproductive system and secondary sex traits. Mulligan and Schmitt came to the following conclusions after reviewing articles written between 1975 and 1992:

(1) Testosterone raises desire for sexual activity (2) The level of testosterone raises the number of sexual behaviours and (3) Testosterone has little to no impact on fictitious or visual erections, but it does increase the frequency of nocturnal erections. The threshold for typical nocturnal erections was reported to be around 200 ng/dl in a study on nocturnal erections and testosterone levels in men. Atypical nocturnal erection parameters are frequently observed in men with low serum testosterone. [3]

According to Beyer and Gonzales-Mariscal, testosterone and dihydrotestosterone cause male pelvic thrust during sex, whereas estradiol or testosterone cause female pelvic thrust. Castration further reduces erectile response when combined with flutamide, estradiol, or a gonadotropin-releasing hormone antagonist therapy. Numerous men receiving long-term androgen ablation therapy for prostate cancer have clinically reported erectile dysfunction and low libido. [3]

ART: Atherosclerotic disease or traumatic arterial occlusion of the Helicin-antral artery tree can reduce arterial flow and perfusion pressure in the sinusoidal spaces, due to It increases the peak erection time and reduces the erection hardness of the penis. According to Michal and Ruzbarsky, erectile dysfunction and coronary heart disease have similar incidence and onset ages. Hypertension, hyperlipidemia, smoking, and diabetes are typical risk factors linked to arterial insufficiency. Cycling over long distances increases the risk of developing vascular and neurological erectile dysfunction. [3]

Cavernosal (Venogenic): One of the most frequent causes of vascular impotence is thought to be complete venous insufficiency. The following pathophysiological processes can lead to venous occlusion dysfunction:

1. The development or presence of wide venous channels draining the cavernous body.
2. Degenerative changes (Peyronie's disease, old age and diabetes) or traumatic lesions of tunica albuginea (penile fracture) lead to inadequate compression of the accessory and parietal veins. In Peyronie's disease, inelastic tunica tunica tunica tunica tunica tunica tunica may prevent conduction veins from closing. Changes in the lower pole of the vagina can alter the mechanism of venous occlusion, as is sometimes seen in patients after surgery for Peyronie's disease [3]

3. Structural changes in the components fibrous periosteum and may lead to venous leakage

Epidemiology of Erectile Dysfunction:

Epidemiology can be divided into two distinct categories: descriptive and analytical. Descriptive epidemiology provides prevalence and incidence data to help understand individuals who have or have had the disorder.

Doctors can determine the number of people with the disease in a certain population, as well as the age and condition that affect the disease. Public health efforts can be geared towards problem solving and marketing to defined populations of products or treatments. Analytical epidemiology, which involves the analysis of disease risk factors, provides data for the development of preventive health strategies. Erectile dysfunction is common to express in two different ways: prevalence and incidence. Prevalence describes the number of people with the disorder at any given time and can be further characterized as current or lifetime. Incidence refers to the number of new cases of the disorder occurring in a particular population during a particular time period. Incidence and prevalence data may come from two different populations. The first population represents those seen for a disorder in a hospital, clinic, or clinic. [5]

Other population sources include people in community samples who are screened for the disorder through questionnaires or other methods such as face-to-face interviews. Boyle cautions that data obtained from self-reports should be questioned, especially for disorders associated with social stigma. [5]

Treatment for Ed:

Vajikarana therapy in Ayurveda:

The overall treatment for impotence is called Ayurvedic Vajikarana therapy. A third tonic herb, closely related to the Rasayanas, is referred to in Ayurveda - Vajikarana. Vaji is a stallion or stallion. These are substances that give strength or vigor to the horse, especially its excellent sexual performance. More commonly, they may be referred to as "aphrodisiacs". Sperm or reproductive tissue (the Ayurvedic concept includes both male and female reproductive tissue) is the essence of all dhatus, the cream of all tissue elements in the body. This means not only ability to give birth to new life, to create a child, but also the ability to renew one's life, restoring our cells to the vitality of youth. [6][7]

Vajikarana substances can be used to improve sexual vitality and function or help direct sexual energy inward for regeneration. Vajikaranas can be divided into tonic and stimulant. Stimulants increase the functional activity of the reproductive organs; they have a powerful revitalizing effect on the nerves and bone marrow, and at the same time increase the energy of the spirit. Sperm is the soma of the body which, if properly catalyzed by the substances Rasayana and Vajikarana, brings about the renewal of the mind. At the same time, it helps to strengthen bones, muscles, ligaments and blood. Ayurveda also distinguishes between herbs that enhance spermatogenesis, called shukrala. These are nutrients for reproductive secretions, such as semen and breast milk. These include Ashwagandha, Ghee Shatavari and others. These preparations also provide the necessary nutrients for sperm production. The main combinations and preparations described in Ayurveda and Charaka Samhita to improve or maintain sexual potency, are garlic, Bhang, Orchis malea, Bombax malabaricum and Amaranthus adscendens root extract, root powder. Albizzia lebbek, saffron, nutmeg extract, pepper and clove Most of these agents are used in combination. Topical use of Jaiphal, Lavanga, Pista and Nirgundi for the penis has been shown to increase vasoconstriction and contractility.

As per Charak Samhita

एतैःप्रयोगैर्विधिवद्वपुष्मान् वीर्यापपन्नो बलवर्णयुक्तः। हर्षान्वितो वाजिवदश्चो भवेत् समर्थश्च घराङ्गनास ॥ ३० ॥

When these formulas are used correctly, one develops a good physique, potency, strength, and complexion, as well as the sexual arousal and potency of an eight-year-old horse. [7]

वाजीकरणमन्विच्छेत्सततं विषयी पुमान् । तुष्टिः पुष्टिरपत्यं च गुणवत्तत्र संथितम् ॥ १ ॥ अपत्यसन्तानकरं यत्सद्यः संप्रहर्षणम् । वाजीवातिबलो येन यात्यप्रतिहतोऽङ्गनाः ॥ २ ॥ भवत्यतिप्रियः स्त्रीणां येन येनोपचीयते । तद्वाजीकरणं तद्धि देहस्योर्जस्करं परम् ॥ ३ ॥

"Men seeking pleasure should regularly use Vajikaran, i.e. slander therapy. Vajikaran bestows contentment, nourishment, continuity of children, and great happiness. Drugs or therapies that the man who can copulate with a woman with great strength like a horse, what makes him love women and nourish his body is called Vajikaran: The best promoter of strength and vitality. . "[7]

Who should not take Vajikarana preparations?

According to Ayurveda, people under 17 years old and over 70 years old are advised not to consume Vajikarana preparations. These preparations will be consumed by the "jitendriya purusha" or the man who controls his senses and desires. If Vajikarana preparations are consumed by "ajitendriya purusha" or a man loses control of his senses and desires, he can harm society. [7]

B. Drug treatment:

Impotence is a growing problem worldwide due to lifestyle changes and stress. Sildenafil Citrate USP, a drug manufactured by Pfizer Inc under the trade name "Viagra," was the first oral erectile dysfunction drug on the market. Since then, Levitra (Vardenafil) and Cialis (Tadalafil) have been approved, providing more options for oral therapy. [1]

C. Psychotherapy

Reducing anxiety related to sex, along with psychotherapy, helps with erectile dysfunction. The patient's partner can offer assistance with various methods, such as the gradual emergence of intimacy and stimulation. Such techniques can also help alleviate anxiety when erectile dysfunction due to physical causes is being treated. Similar treatment has also been demonstrated in Ayurveda. It has been said that "A woman who understands a man and is loved by him, with an erotic environment, works as the best aphrodisiac." [1]

D. Food and nutrition control:

Diet can also have a lot to do with sexual energy, and unripe proteins can clearly be related to sex as well and essential fatty acids for daily hormonal characteristics. A precursor too many sex hormones, and if too low can lead to changes in sex characteristics and energy. Dietary E supplements may be helpful for sexual energy and fertility; but still difficult to show in humans. Niacin, the blushing form of dietary B3, acts as a vasodilator, increasing sexual pleasure from this niacin juice, especially with regard

to male fertility and libido. The low zinc phase can also lead to impotence, low sperm count and lack of sexual interest. Every day is not always recommended as it will reduce the immune characteristics and the production of testosterone hormone will also be encouraged by zinc. Has been linked to sperm motility, and male infertility has been linked to the nutrients A and E, and the mineral zinc, which is essential for the health of the mucous membranes. L-arginine, an amino acid, is also involved in one way or another with sperm production. Therefore, it does not directly improve testosterone production in men. Dietary B acid is helpful for all ovarian traits and sperm production, and it, along with beta-carotene, dietary E and selenium, can also reduce production. Iodine helps improve the function of the thyroid gland, which improves both sexual interest and ability to function. Sperm is made up of calcium, zinc, essential for sperm motility, hence nucleic acids, especially inosine [1]

Garlic and Sildenafil Citrate:

A Comparative Case Study In this section we have tried to compare two similar drugs of different nature and system, well-known synthetic drug - Sildenafil Citrate and a commonly used natural medicine - garlic, on a pharmacological basis. Particular emphasis is placed on establishing a correlation between NO production and erection mechanisms of these drugs, as well as the social implications of their use in the treatment of erectile dysfunction. It is summarized that the mode of action and the mechanism are almost similar; one is useful in cases where S.O.S. is required, while the latter can be used as a long-term therapy, but not as long-term therapy. Have medical and social side effects. 6.1 Sildenafil Citrate's mechanism of action: Viagra, Levitra and Cialis work in a similar way, chemically known as phosphodiesterase inhibitors. Among these, Sildenafil Citrate is a type 5(PDE-5) phosphodiesterase inhibitor, an enzyme that breaks down GMP. Therefore, it helps to maintain high CGMP levels during erection. It also inhibits PDE-6, which is involved in photo transmission in the retina. Its results have been demonstrated to be 4000 times greater than that of any other PDE inhibitor. Studies have shown that the drug causes an erection only in response to sexual stimulation. [1] [9]

Garlic:

Garlic or lasan consists of the mature tubers of *Allium sativum* Linn of the family Liliaceae and contains at least 0.1% allicin. [10] Besides some of the uses of garlic, garlic cloves are also used as a vegetable to treat the preliminary stages of impotence. Traditionally, Lasun chatni or Lasun dal with buttermilk is used to increase sexual potency. According to reports, garlic may exert some healing properties by increasing the production of NO in the body. [11] [1]

Garlic and nitric oxide production:

At least two isoforms of cNOS - eNOS, present in endothelial cells and nNOS present in neurons [12], and garlic have also been shown to increase NOS activity in the non-cellular system, presumably an effect on cNOS. This raises the possibility that the arginine present in garlic is responsible for the NOS activation observed in cell-free platelet homogenates. Garlic has been reported to increase the activity of the enzyme GTP-Cyclohydrolase-I, which is responsible for the synthesis of TBH by GTP. [11] [13] [14] A dose-dependent increase in NOS activity of garlic without the effect of arginine on NOS was reported by Das et al. When the effects of garlic perchloric acid extract on placental NOS activity were studied with and without an equivalent amount of arginine present in garlic, arginine by itself did not even improve NOS activity. However, garlic extract showed a dose-dependent increase in NOS activity. [15] This raises the possibility that a non-arginine substrate is responsible for NOS activation of garlic. [16] [17] Garlic increases NOS activity in a dose-dependent manner. [1]

Results and Discussion

Erectile dysfunction and its treatment:

Erectile dysfunction is becoming one of the most serious stress and lifestyle related disorders. Physiological disorders, overwork, low testosterone levels and stressful relationships with sexual partners are the main causes of this disease. In addition to drug therapy and controlled diet, Ayurveda offers natural medicines with proven effectiveness for treatment of erectile dysfunction. Psychotherapy, meditation, and confidence can also be very helpful approaches to treating this condition. [1]

Garlic and Sildenafil Citrate - A Case Study:

On the other hand, the use of Sildenafil Citrate U.S.P. It is associated with several side effects by increasing the levels of NO, a signalling molecule, in the body and has an effect on various systems and mainly the cardiovascular system of the body. A comparison between Garlic and Sildenafil Citrate on the basis of medical potential and social aspects is given in Table 1. Results show the therapeutic effect of Sildenafil Citrate in erectile dysfunction; Garlic also has more or less similar effects and modes of action. The only step that is different is that Sildenafil Citrate increases the level of GMP in the blood by inhibiting its breaking enzyme, phosphodiesterase-5 (PDE-5), while garlic works by activating the enzyme guananyl cyclase and thus increasing GMP production in the body and the rest of the body. Steps are common in both cases. Garlic has also been observed to have mild side effects and toxicity, with no potential for abuse, and garlic contraindications have been reported for sildenafil citrate. The use of garlic is also justified by social aspects and may be a drug of choice among the two. Based on the above conclusions, it can be concluded that garlic can be used as a better alternative to synthetic drugs for erectile dysfunction, and it is possible to treat this disease with a preparation based on these drugs. [1]

Ayurveda V/S Allopathy V/S Stem Cell Therapy:

Table 1.1

Important factors to consider before choosing option for Erectile Dysfunction	Exercise and lifestyle modification	Ayurvedic treatment	PDE5 inhibitors Allopathy	Penis pump	Penile implant surgery	Stem cell therapy
Sustainability {long term v/s short term results}	Long term	Long term	Short term	Short term	Long term	Long term
waiting time for results	Long waiting time	Long waiting time	Short waiting time	Short waiting time	Short waiting time	Short waiting time
Natural feeling v/s artificial feeling	Natural feeling	Natural feeling	Natural feeling	artificial feeling	artificial feeling	Natural feeling
Side effects	no	No	yes	yes	Yes	no

cost	No cost	Affordable	Affordable but recurring cost	costlier	Costlier	Costlier and more effective
Dependency building on treatment	No	No	Yes	Yes	No	No
Ease of use	Easy	Easy	Easy	Easy	Easy	Easy

[8]

Proposed Mechanism Of Actions:

Possible mode of Action of the drugs:

They are endowed with the qualities of Madhur, Snigdha and Sita (Ashwagandha-Ushna), similar to Sukra. Since stress is the main cause of erectile dysfunction, Aswagandha including Madhura, Tikta Katu Rasa, Ushna Virya Ad mentioned as Vajikaran, Mastisklasamak, Vlyya, Brimhan, Rasayan are very effective for stressor induced erectile dysfunction Shatavari is mentioned as blyya, rasayan, vrisya, sukrala by madhura tikta rasa, shita virya, guru, snigdha guna exalting sukra dhatu and is also used in mastiska durvlyya. This is probably due to the increase in his Jalamahabhoot, the main ingredient of Sukra, and the properties of ingredients in medicines such as Madhur, Snigda and Sita. The medicine enhances the quality of sukra and at the same time causes an increase in panchamahabut resulting in an increase in the amount of sukra and in Aswagda and Shatavari there is Mastiska Samguna which is very important for spiritual transformation. There is erectile dysfunction.

Asparagus racemosus

Determination of attraction to sexually receptive women was performed according to the method described in [34][19]. Lag time was recorded as the time (in seconds) taken by male rats to attempt to cross the barrier. Similarly, over a 15-min observation period she recorded her attractiveness score to females by giving them a score of 0–5. She scored 5 if the male rat crossed the partition completely, scored 2 if she tried to climb, and scored 0 if she was indifferent to climbing. This test helps determine the willingness of male rats to climb to cross an aversive position, thereby indicating intent for sexual attraction [34].

Eurycoma longifolia Jack

Longifolia produced a significant increase in dose-dependent, recurrent, and increased penile reflex episodes, as evidenced by an increase in rapid rolling, elongation, and erections of controlled male rats during the 30-minute observation period. The main mechanism is through his testosterone. Improve the effect of prevention and treatment of osteoporosis caused by androgen deficiency. Other mechanisms involved are through its nitric oxide content and antioxidant properties. [18]

Butea superba

Butea superba Roxb (Leguminosae) is typically found in the deciduous forests of Thailand and has its domestic name "Red Kwao Krua". The root has long been used as a conventional treatment for enhancing male sexuality. The alcohol extract of B. superba

(0.01, 0.1 or 1.0 mg/kg b.w./day) for 6 months of treatment significantly increased sperm concentration and delayed the decrease in motility following time. No signs of sperm abnormalities and testicular damage were observed [20] Subclinical treatment of *B. superba* tuber high doses of a powder suspension (200 mg/kg) in male rats showed adverse effects for blood chemistry, hematology and blood testosterone levels. Powdered crude drug at doses of 2, 25, 250 and 1250 mg/kg body weight was administered for 8 weeks; there was an increase in testicular weight and sperm count in rats. Hematology as well as liver and kidney function of all treated groups did not differ from the control group [21] receiving the plant powder. This study showed that testosterone disruption was significant, at least after 90 days of consuming high doses of *B. superba* powder [22]. Ethanolic extract of *B. Superba* is effective in improving penile erection. Ethanol extracts increase intracavernous pressure (ICP) in vivo. It also significantly enhanced the effects of cGMP and isobutylmethylxanthine. This suggests that *B. superba* can act through the cAMP/cGMP pathway [23]

Curculigo orchioides

The treatment also markedly affected the sexual behavior of the animals, as evidenced by a decrease in riding time, an increase in the frequency of bonding, and an improved attraction to females. The lyophilized aqueous extract of *Curculigoosystemoides* significantly improved pendulum activity in male rats after 14 days of treatment. "Effect of Selected Vajikaran Herbs on In vitro spermatogenesis and regulation activities in humans", sex and disability. The reduction in procrastination time (an indicator of female attraction in treated rats) also showed improved sexual behavior in the extract-treated animals [25].

Cynomorium coccineum

Cynomorium coccineum Linn. (Cynomoraceae), scientifically known as Som-El-Ferakh in Saudi Arabia, is a leafless, chlorophyll-free, black parasitic plant. The natives of Qatar use it (mainly with honey) as a tonic and aphrodisiac [26]. The aqueous extract of *Cynomorium coccineum* significantly increased sperm count, improved the percentage of live sperm and their motility, and decreased abnormal sperm count. Testicular histology showed increased spermatogenesis and sperm-filled semi-coniferous tubules in the treated group compared with the untreated control group [27]. The aqueous extract of the plant induced significant spermatogenesis in immature rats. Serum testosterone and FSH concentrations were lower in extract-treated animals compared with controls, while interstitial cell-stimulating hormone levels were higher in treated animals [28] [18].

Epimedium koreanum

Pubescens Maxim., E. brevicornum Maxim, E. Alcoholic plant extracts are well known to improve erectile function and to have aphrodisiac effects are frequently used in Chinese herbal medicine [29] . This involves the pro-substitution of kaempferide 3, 7-O-diglycoside, icariin for erectile dysfunction and the establishment of its dose-dependent selective inhibit effect on phosphodiesterase-5 (PDE5) . Oral treatment with icariin (purity >98.6%) for 4 weeks is likely to improve erectile function. Castrated mice's corpus cavernosum exhibits several isoforms of NO synthase expression and more smooth muscle, which are all correlated with this effect. These findings imply that icariin might therapeutic effects on erectile dysfunction [30].

Withania somnifera

It also showed anti-sterility activity in male rats [31]. It also protected swimming-induced reproductive endocrine dysfunction in male rats [32]. When compared to male rats given a placebo, ashwagandha root extract significantly improved spermatogenic activity and serum hormone levels in oligospermic patients [33]. Withania somnifera treatment improved sperm motility and count in infertile men by preventing lipid peroxidation and protein carbonyl content. When used, Somnifera root powder at a dose of 5 g/day for 3 months to male infertility resulted in reduced stress, improved antioxidant levels, and overall improvements in sperm and vitamin A, C, E and fructose adjustment.

Conclusion:

This review focuses on some potential natural herbal aphrodisiacs. Erectile dysfunction is defined as the inability of a man to achieve and maintain an erection. Therefore, an aphrodisiac can be described as any substance that enhances sexual desire and (or) pleasure. Aphrodisiacs are used to improve sexual behavior and performance. This study confirms the effectiveness of the herb in improving and preventing the function of the sex organs, some natural aphrodisiacs like Asparagus racemosus, Eurycoma longifolia Jack, Butea superba, Curculigoosystemoides, etc. herbal remedy for sexual dysfunction. Several herbal medicines are used in Ayurvedic formulations as a potential aphrodisiac to enhance performance as well as enhance vitality and vitality according to several studies by researchers in the current direction. In addition to pharmaceutical therapy and controlled diet pills, Ayurveda offers natural medicines with proven effectiveness for the treatment of erectile dysfunction. A treatment regimen that combines drug therapy with psychotherapy and self-confidence may be the most helpful approach to dealing with this treatment.

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