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Review Article

Aphrodisiac Potential of Indigenous Medicinal Plants of Sri Lanka- A Review

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Abstract

An aphrodisiac is defined as an agent with an ability to arouse sexual desire. Aphrodite, the Greek goddess of sexuality, love, and beauty, inspired the word. Vigor and vitality are important determinants of life. This study was undertaken to review the value of plants containing aphrodisiac properties which were used in traditional system of medicine in Sri Lanka. Data submitted here was gathered from local knowledge on Ayurveda, Unani Sidda and Traditional medicine by using research carried out by researchers, Ola leaves and from traditional authentic textbooks. According to this study plants are used as single or compound medicine for treated sexual dysfunction including premature ejaculation, retrograded, retarded, or suppressed ejaculation, erectile dysfunction, arousal issues, compulsive sexual behavior, orgasmic disorder, and failure of detumescence. The pharmacologically tested (either in man or animal or both) aphrodisiac herbs and information about their pharmacological efficacy, mode of action, and toxicity have been discussed in this review. Furthermore, this study discovered that some plants and their extracts have aphrodisiac properties, which will aid researchers in developing novel herbal aphrodisiac compositions. Further research on the ethnopharmacology and toxicology of the reported plants is needed so that they can be properly used in traditional medicine and utilized for drug discovery.

Keywords

Aphrodisiac Plants, Herbal Aphrodisiacs, Impotence, Sex Stimulants, Erectile Dysfunction

1. Introduction

There is abundant evidence about traditional medical approaches, documented mainly in the form of olla leaves that have been practiced over several decades. Over time, Ayurveda, Siddha, and Unani systems of medicine have been added into the Sri Lankan traditional medicine. Traditional system use mainly plant, mineral and animal compounds singly or as mixtures for the treatment of diseases [1]. The word “aphrodisiac” is derived from the Greek term “Aphrodite” which was used to call a goddess of sex, love, and beauty. An aphrodisiac is defined as an agent (food or drug) that arouses sexual desire [2]. Millions of men worldwide experience erectile dysfunction (ED), or male impotence, which significantly affects sexual health, psychological well-being, and quality of life. Recent studies indicate that ED prevalence continues to rise due to aging, lifestyle factors, and comorbidities [121, 122]. The etiology of sexual dysfunction includes psychological factors (anxiety, depression, stress, fear of sexual activity), neurological disorders (stroke, cerebral trauma, Alzheimer’s, Parkinson’s disease), chronic metabolic conditions (diabetes, hypertension, vascular insufficiency,

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atherosclerosis), lifestyle factors (chronic alcohol use, cigarette smoking), and systemic illnesses (cardiac, hepatic, renal, pulmonary disease, cancer) [3-6, 123]. Treatment of ED involves numerous plants and minerals with aphrodisiac potentials. Even though a considerable number of plants are used as aphrodisiacs, there is less scientific proof supporting those assertions. Although numerous plants and minerals are traditionally used as aphrodisiacs, scientific validation remains limited. However, recent pharmacological studies highlight that many herbal aphrodisiacs exert effects through nitric-oxide-mediated vasodilation, hormonal modulation, antioxidant activity, and enhancement of sperm quality—mechanisms increasingly supported by modern research [124-126]. Boosted sexual behavior may provide increased relationship satisfaction and self-esteem in humans [7, 8]. Sri Lankan traditional medicine includes Vājīkarana thanthra (aphrodisiac therapy), a specialized branch of Ayurveda aimed at enhancing erectile function, treating infertility, improving spermatogenesis, correcting defective semen quality, and promoting overall sexual satisfaction. Recent reviews emphasize that Ayurvedic concepts align with modern biomedical understanding, particularly regarding reproductive tissue nourishment, hormonal balance, and stress reduction [123, 127]. Therefore, the study of aphrodisiac properties of plant material is important because it may reveal resources of novel agents with less side effects. Sri Lankan traditional medicine includes *Vājīkarana thanthra* (Aphrodisiac therapy) which contains herbal for treating erectile dysfunction, causes of infertility, spermatogenesis, semen genesis reproduction, methods of correcting defective semen and sexual satisfaction of an individual. This study was undertaken to make the researchers aware of the value of plants containing aphrodisiac properties which are being used in traditional medical approaches in Sri Lanka.

1.1. Modern Perspective of the Aphrodisiac Potential

Psychological and hormonal factors lead to penile erection and it is under neurovascular regulation [6]. Throughout the sexual stimulus, parasympathetic activity causes the discharge of neurotransmitters from the cavernous nerve terminals and relaxing factors from the endothelial cells within the penis. This causes smooth muscle relaxation in the arteries and arterioles supplying the erectile tissue which in turn results in a several fold increase in the blood flow to the penis. Venous discharge from the penis is separately obstructed. This mechanism lets the penis become erect. Additionally, nitric oxide (NO) is released from the endothelial cells and neural tissue of the corpora cavernosa because of the relaxation of smooth muscle. NO activates a soluble guanylyl cyclase (GC), which increases the intracellular concentration of cyclic guanosine monophosphate (cGMP). cGMP activates a specific protein kinase, blocks calcium flow, and inhibits calcium channels. Furthermore, cGMP is hydrolyzed by phosphodiesterase type-5 enzyme (PDE-5) into inactive GMP which causes the erection to cease. Aphrodisiac activity inhibits the hydrolyzing action of PDE-5 which subsequently causes a prolonging erection due to increased blood flow into the penis [9-12].

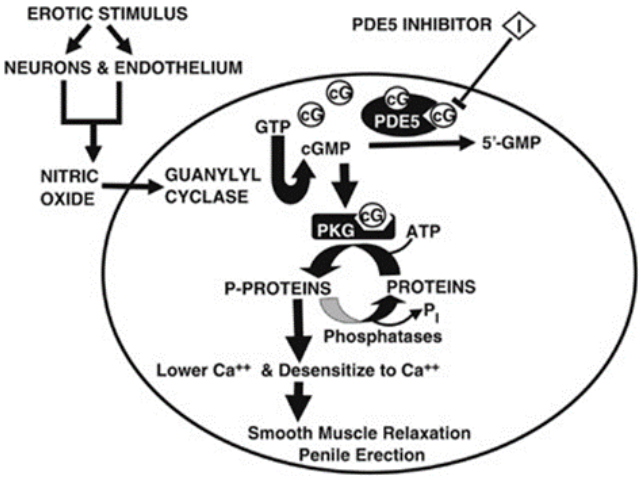

Figure 1. *NO–cGMP pathway mediating penile smooth muscle relaxation via PKG and Ca $^{2+}$ reduction. [13, 14].*

1.2. Traditional Perspective of the Aphrodisiac Potential

As per Sanskrit literature *Vājī* means horse that symbolized sexual potency and performance like a horse. *Vājīkarana* is not exactly aphrodisiac but the current connotation meaning is same. Therefore *Vājīkarana* means sexual vigor like a horse because the sexual capacity is higher in horses [15, 16]. According to Charaka Samhitha, the appropriate use of *Vājīkarana* formulations lead individuals to have good physique, potency, strength, complexion and sexually exhilarated and potent like a horse [16, 17]. According to Ashtanga Hridaya Samhitha person should take *Vājīkarana*, vilification therapy regularly to have maximum pleasure in his life. The *Vājīkarana* gives satisfaction, nourishment, continuity of progeny and great happiness. The medicines or therapies which enable a man to have a sexual intercourse with a woman with great strength like a horse, which endear him to women, and which nourish the body of the person are known as *Vājīkarana*. It is the best promoter of strength and vigor [18]. According to Sarartha Samgraha *Vājīkarana* therapy is consider as a property of a drug which lead to increase the decrease seven *dhātus* (body elements) of body and restores stability and health of a person [19].

2. Plant Derived Aphrodisiac Agents in Clinical Use

Herbal plants have been used for therapeutic purposes in

traditional medicine for centuries and the literature reflects that many plants have fertility-enhancing and aphrodisiac activities in males as well as females. Those properties of plant were used to prepared drugs in commercially (Table 1). Among them, the aphrodisiac activity has been studied and recorded extensively in some plants and they are described below.

Tonkat Ali (Eurycoma longifolia Jack)

Tonkat Ali *(Eurycoma longifolia*) is an herbal medicinal plant found in Southeast Asia also known as Malaysian ginseng. According to previous studies *E longifolia* has an ability to stimulate the free testosterone level, improve sex drive, reduce fatigue, and improve well-being of a person [20]. Low, B. S., Das, P. K., and Chan, K. L., in their study of Tonkat Ali (*Eurycoma longifolia* Jack) ethanolic extracts in animal experiment; was testified that *E longifolia* has an ability to increase male fertility by increasing semen volumes, spermatozoa count, and motility of sperm. The phytochemicals also affect to hypothalamic-pituitary-gonadal axis leading to an improved rat spermatogenesis [21]. Low, B. S., et al in their study discussed that *the E longifolia* boosted testosterone steroid genesis in leydig cells by inhibiting aromatase conversion of testosterone to estrogen. It can also cause phosphodiesterase inhibition at a higher concentration. Therefore, *E longifolia* can be used to develop phytomedicine to treat male infertility and sterility which occur due to testosterone deficiency [22]. In addition, Ismail, S. B., et al., has shown that the freeze-dried water extract of *E longifolia* significantly improved in erectile function, sexual libido, sperm motility, and semen volume [23].

According to Chan, K. L., et al., the effect of ethanol extract of *E longifolia* on sperm quality of male rats at 200 mg/kg was significantly increased in control and normal appearance of spermatocytes in the seminiferous tubules and the leydig cells of experimental sample. Several phytochemicals were detected in the rat testis and was confirmed by HPLC-UV and said to be incensement of the quality of sperm. As a result, they concluded that the plant can be possibly used to treat male infertility and sterility [24]. Ang, H. H. and T. H. Ngai, in their study concluded that the ethanol extract of *E longifolia* increases testosterone level and insulin sensitivity by suppressing α-2HS glycoprotein [25]. According to Rehman, S. U., K. Choe, and H. H. Yoo, water extract of *E longifolia* at 25 mg/kg and at 400 mg/day enhanced spermatogenesis, testosterone steroid genesis, testosterone concentration and muscular force. [26].

Enema, O., et al., in their study concluded that Quassinoids, (eurycomanone, eurycomnol, pasakbumin-B, hydroxylklaineanones, β-carboline alkaloids, canthin-6-one alkaloids, eurycomalactone, laurycolactone, biphenyl neolignan, steroids) alkaloids, (5,9-dimethoxycycanthin-6-one, 9,10-dimethoxy-3-methylcanthin5,6-dione) and derivatives (longilene peroxidase, teurilene, eurylene and 14-deacetylleurylene) have been isolated from ethanol extract of *E longifolia* [27].

Gingko (Ginkgo biloba L.)

Gingko *(Ginkgo biloba)* is one of the widespread herbal medicinal plants and basically its extract has been used in traditional Chinese medicine to increase blood circulation due to its ability of thinning effect on the blood which helps to improve the muscle tone in the walls of the blood vessels. According to WC, E., Trease and Evans pharmacognosy, extracts of *Ginkgo biloba* may cause reduced sexual performance by improving the sexual pleasure as well as psychological conditions like mild depression, easing stress and anxiety [28]. According to some other researchers EGb761, the most widely used *Ginkgo biloba* extract, comprises flavonoid glycosides, primarily kaempferol, quercetin glucorhamnoside esters, and ginkgolides and bilobalides terpenes. The components proposed are to be able to prevent MAO enzyme and the absorption of several neurotransmitters, such as noradrenaline and serotonin, in the central nervous system. There has been no significant effect on cognitive function as reported in a recent meta-analysis of 28 clinical investigations with Ginkgo. Ginkgo extracts have been shown to improve sexual function by increasing blood flow to the brain and genital organs. These extracts may also increase NO bioavailability, which may have a positive effect on sexual function.[29].

Maca (Lepidium meyenii Walpers)

A study has reported that treating rats at high altitudes with *Lepidium meyenii* prevented high altitude spermatogenic disruption. Accordingly, 1500 mg/kg or 3000 mg/kg p. o had no effect on serum levels of leutinizing and follicle stimulating hormone. *L meyenii* increases stamina and endurance, mood, libido, and erectile capabilities due to the presence of arginine, which increases NO, which relaxes blood vessels, and has the same basic effect as Viagra [30]. *L meyenii* extracts containing benzyl glucosinolates and polyphenols have been shown during analytical research, as well as P-methoxybenzyl isothiocyanate, (1R, 3S)-1-methyl-1, 2, 3, 4-tetrahydro-β-carboxylic acid (MtCA), and many more compounds. But the mechanism of *L meyenii* action to modify sex is unknown [29].

Ginseng (Panax ginseng C. A. Meyer)

As per Cho, K. S., et al., in their study of *Panax ginseng* C. A. Meyer, it is a Korean-China native plant which has been utilized for thousands of years as an herbal treatment in East Asia. Modern treatment claims relate to vitality, immunological function, cancer, cardiovascular illnesses, and cognitive, physical, and sexual optimization. *Panx Ginsenoside 3 beta* (PGRg3) has developed significantly and maintains the development of normal male rats' sexual activity including enhancement of all forms of erectile dysfunction and premature ejaculation. Ginsenosides improve acetylcholine-induced and trans mural nerve stimulation-activated relaxation by increasing tissue cGMP, which is mediated by NO release [31].

Yohimbe (Pausinystalia yohimbe)

Pausinystalia yohimbe was discovered to be a pharmacologic agent in 1998 through several studies. *P yohimbe* is an

evergreen tree in the Rubiaceae family that grows primarily in the African West Coast's tropical region. *P yohimbe* was found to be more effective than placebo in the treatment of erectile dysfunction. Another study found that a 20 mg dose of *P yohimbe* significantly increased the number of men who developed orgasm due to increase circulation of blood to sexual organs, enhancing sexual arousal and reducing psychological conditions such as stress, mild depression, and anxiety [32]. According to some researchers *P yohimbe* binds to human alpha-2 adrenoceptors with high affinity, alpha-1 adrenoceptors with moderate affinity, and some serotonin and dopamine receptors in the central and peripheral nervous systems with low affinity. *P yohimbe* is thought to enhance central sexual impulse by blocking alpha-2 adrenoceptors in the brain's locus cerulean. *P yohimbe* has been shown to inhibit alpha-1 and alpha-2 adrenoceptors while increasing the release of NO from cavernosal endothelial cells in the periphery. To summarize, the mechanism of action of *P yohimbe* in improving sexual function is currently unknown [29]. According to Kotta, S., S. H. Ansari, and J. Ali, in their study shows that the *P yohimbe* extract may be useful in the treatment of some forms of male infertility caused by testicular torsion [33].

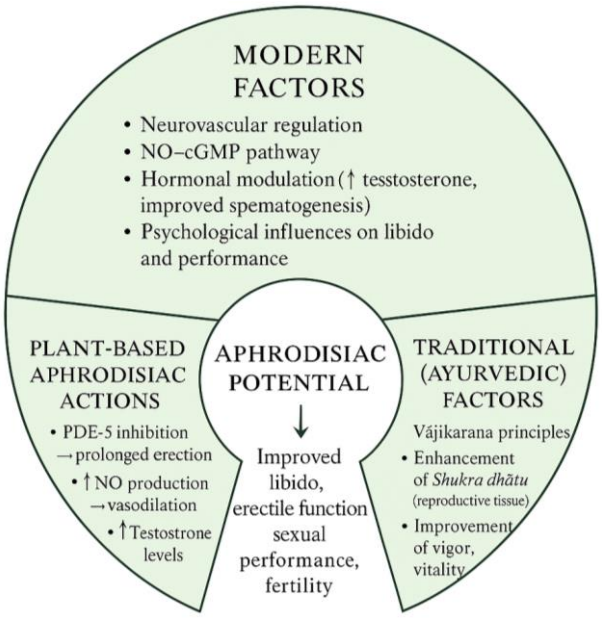

Figure 2. *Conceptual diagram showing how modern mechanisms, Ayurvedic principles, and plant-based actions interact to enhance libido, erectile function, sexual performance, and fertility.*

Table 1. *List of Some Aphrodisiac Herbal Products.*

	Brand Name	Names of plant sources
1	Endowmax	*Epimedium grandiflorum, Turnera diffusa, Tribulus terrestris, Lepidium meyeni, Muira puama, Xanthoparmelia scabrosa, Cnidium monnieri, Eurycoma longifolia*
2	Enzyte	*Panax ginseng, Gingko biloba, Epimedium sagittatum, Muira puama, Urtica dioica*
3	Extenze	*Pausinystalia yohimbe, Panax ginseng, Muira puama, Piper longum, Zingiber officinale, Cnidium monnieri, Xanthoparmelia Scabrosa, Epimedium grandiflorum, Turnera diffusa*
4	Horny	*Epimedium sagittatum, Lepidium meyenii, Eurycoma longifolia*
5	Maxidus	*Eurycoma longifolia, Flos catharmi, Curcumae longae, Gingko biloba, Herba Epimedii, Herba Cistanches, Astragalus membranaceus, Momordica charantia*
6	Orexis	*Tribulus terrestris, Epimedium sagittatum, Muira puama, Panax ginseng, Catuaba bark extract, Turnera diffusa, Pausinystalia yohimbe*
7	Pro Solution Pills	*Panax ginseng, Butea superba, Momordica carantina, Phyllanthus emblica, Terminalia arjuna, Cordyceps, Ganoderma lingzhi Curculigo, Fucus vesiculosus*
8	Provigro	*Epimedium grandiflorum, Lepidium meyenii, Epimedium grandiflorum, Mucuna pruriens, Muira puama, Panax ginseng, Serenoa repens*
9	Quantum Pills	*Lepidium meyenii, Muira puama, Epimedium grandiflorum, Catuaba bark, Gingko biloba*
10	Sinrex	*Cuscuta seed, Gingko biloba, Crataegus, Epunedum Sagitum, Lepidium meyenii, Serenoa repens, Siberian ginseng, Tribulus terrestris, Camellia sinensis*
11	Sizepro	*Epimedium grandiflorum, Crataegus, Turnera diffusa, Muira puama; Gingko biloba, Panax ginseng, Tribulus terrestris, Catuaba bark, Serenoa repens*
12	Vazomyne	*Serenoa repens, Gingko biloba, Turnera diffusa, Polygonum multiflorum, Muira puama, Urtica dioica*
13	Virility EX	*Pausinystalia yohimbe, Muira puama, Catuaba bark, Lepidium meyenii, Eleutherococcus senticosus, Eurycoma longifolia*

	Brand Name	Names of plant sources
14	Xanogen	*Epimedium grandiflorum, Lepidium meyenii, Pausinystalia yohimbe, Tribulus terrestris, Muira puama, Catuaba bark, Xanthoparmelia scabrosa, Cnidium Monnieri*
15	Xytomax	*Epimedium sagittatum, Lepidium meyenii, Paullinia cupana extract, Panax ginseng, Muira puama, Eurycoma longifolia extract, Avena sativa, Pausinystalia yohimbe, Ginkgo biloba, Serenoa repens, Xanthoparmelia Scabrosa, Cnidium monnieri, Turnera diffusa*

3. Plants Used in Traditional Medicine That Have Aphrodisiac Properties

Table 2. *Plant Used in Traditional Medicine That Have Aphrodisiac Properties.*

Plant	Family	Common Name	Part used	Pharmacological action	References
Abelmoschus marihot Linn.	Malvaceae	Kapukiniss (Musk mallow)	Seed	Ethanol extract of 100 and 200 mg/kg showed increase in the diameter of seminiferous tubules, increased the mounting frequency, intromission frequency and penile reflex, as compared to control and the body/organ weight, weight of testis, weight of seminal vesicle and sperm count is also increased due to increase in the diameter of seminiferous tubules	[19, 34-39]
Achyranthes aspera	Amaranthaceae	Karalsaba (Prickly Chaff Flower)	Root	Hydroethanolic, n-hexane and chloroform extracts, which were found to be most effective for sperm immobilization, sperm viability, acrosome status, 5'-nucleotidase activity and nuclear chromatin decondensation, post coital antifertility activity and Spermicidal activity.	[19, 39-44]
Acorus calamus L.	Acoraceae	Wadakaha (Sweet Flag)	Rhizome	-	[45, 46]
Alysicarpus vaginalis	Fabaceae	Aswanna (Alyce Clover)	Whole Plant	-	[18]
Aponogeton crispus	Aponogetonaceae	Kekatiya (Ruffled/Crinkled or Wavy-edged Aponogeton)	Whole Plant	-	[39]
Asparagus racemosus (Willd)	Liliaceae	Hathavariya (Wild Asparagus)	Root	Hydro-alcoholic extract of root at higher concentration (400 mg/kg body weight) showed significant aphrodisiac activity on male wistar albino rats and increase in number of mounts and mating performance, significant variation in the sexual behavior of animals as reflected by reduction of mount latency, ejaculation latency, post ejaculatory latency, intromission latency. Penile erections are also considerably enhanced. The observed effects appear to be the testosterone-like effects of the extracts. Nitric oxide based intervention may also be involved as observable from the improved penile erection	[16, 18, 19, 39, 40, 45-54]
Averrhoa carambola L.	Oxalidaceae	Kamaranga (Star Fruit)	Whole plant	-	[47, 49]
Bacopa monnieri L.	Scrophulariaceae	Lunuvila	Whole Plant	Sedative and tranquilizing effect on albino rats	[19, 41]
Benincasa hispida Cogn.	Cucurbitaceae	Alupuhul (White Gourd)	Fruit	Aphrodisiac activity	[19, 34, 55]

Plant	Family	Common Name	Part used	Pharmacological action	References
Boerhavia diffusa. L	Nyctaginaceae	Sarana (Hog weed)	Whole Plant	Aqueous extract of B. diffusa produced adverse effects in semen and testicular morphology of the rats. Sperm motility and sperm count decreased significantly ($P<0.05$) also in the sperm live-dead ratio decreased significantly ($P<0.05$) in rats treated with 100 and 150mg/kg of the extract compared with the control. Administration of aqueous extract of leaves resulted in a decrease in serum testosterone levels. Hypoglycemic effect of the extract causing decreases in the level of the fructose in the seminal vesicles lead to reduce sperm mortality.	[16, 18, 39, 41, 49, 56]
Bombax ceiba L.	Malvaceae	Katu imbul (Red silk Cotton Tree)	Gum, Seeds, Fruit	Sexually active and inactive animals showed increased and improved sexual performance, when roots extract (400 mg/kg body wt.) was administered for a period of 21 to 28 days. Nervous stimulant and increase in serum testosterone levels and Seminal fructose content and epididymis sperm count were significantly improved	[19, 39, 46, 47, 49, 57-60]
Caesalpinia bonduc	Fabaceae	Kumburu (Indian tree of heaven)	Whole plant	A significant increase in mount frequency and intromission frequency as well as significant reduction in mount latency and intromission latency were noticed for ethanolic extract. The extract caused an improvement in testosterone levels, and well-developed seminiferous tubules were observed.	[39, 61-63]
Calotropis gigantea L.	Asclepiadaceae	Ela Wara (White Gigantic Swallow Wort)	Root, root-bark, leaves, flowers, Resine	-	[46]
Cannabis sativa	Cannabinaceae	Kansa (Cannabis / Marijuana)	Whole Plant	Cannabis is used to overcome impotence and raise libido and CNS depressant widely used for premature ejaculation by transmission of nerve impulse and delay ejaculation.	[19, 39, 41, 46, 60, 64]
Cardiospermum halicacabum L.	Sapindaceae	Walpenela (Balloon Plant)	Whole Plant	Treatment with 100 mg/kg and 200 mg/kg body weight of aqueous leaf extract for 30 days produced a significant dose dependent increase in the sperm counts and sperm motility in both caput and cauda regions. Increased fertility by increasing sperm motility, sperm count and this may be due to increased testosterone levels in the serum.	[19, 47, 49, 65-68]
Carissa carandas	Apocynaceae	Karada (Indian Beech Tree)	Root, Leaves, Bark	Have Aphrodisiac properties	[39, 69]
Cinnamomum cassia	Lauraceae	Kurudu (Cinnamon)	Leaves, Bark	Increased sexual function in aged rats that had decreased in comparison to young rats, but did not have any significant effect on sperm count, live and defective sperm percentage. Rho-kinase inhibition, increase in smooth muscle: collagen ratio and mitigation of oxidative stress in rat penile smooth muscle.	[39, 70, 71]
Citrullus colosynthis	Cucurbitaceae	Thiththa Labu	Seeds, Root, Fruit	The ethanolic extract of seeds at higher concentration (400 mg/kg body weight) showed significant aphrodisiac activity on male wistar albino rats as evidenced by an increase in number of mounts, mating performance, hormonal analysis, testes-body ratio and sperm count. Extract of seeds enhance sexual behavior due to various	[46, 72]

Plant	Family	Common Name	Part used	Pharmacological action	References
				phytochemical influences	
Cleome gynandra	Capparaceae	Wela (Wild Spider Flower)	Whole Plant	Increase in mating frequency, sexual behavior and orientation activity performance	[39, 47, 49, 73]
Convolvulus prostratus	Convolvulaceae	Shankapushpi	Whole Plant	-	[39]
Coriandrum sativum Linn.	Apiaceae	Kottamalli (Coriander)	Seed	Increase sexual behavior. Activate the release of sex hormones	[16, 39, 46, 74, 75]
Cosinia grandis	Cocorbitaceae	Kowakka (Ivy Gourd)	Fruit, Leaves	-	[46]
Cosinium fenestratum	Menispermaceae	Walagasahal (Yellow vine)	Seed	-	[19, 39, 45, 49]
Cuminum cyminum	Apiaceae	Suduru (Cumin)	Seed	-	[16, 39, 60, 76]
Curculigo orchioides	Hypoxidaceae	Heen binthal (Golden eye grass)	Rhizome	Significant increase in mount, intromission and post-ejaculatory latency, extract treated group animals showed pronounced effects in terms of testis weight and histological alterations. Improvement of spermatogenesis via steroid synthesis	[39, 45-48, 77, 78]
Curcuma longa	Zingiberaceae	Kaha (Turmeric)	Rhizome	-	[18, 40, 46]
Cyperus rotundus	Cyperaceae	Kaladuru (Nut Grass)	Rhizome	-	[18, 39, 46]
Datura metel	Solanaceae	Attana (Datura)	Leaves	-	[19, 39, 46, 60]
Desmodium triflorum	Fabaceae	Udupiyaliya (Creeping tick trefoil)	Whole Plant	-	[19, 47, 49]
Durio zibethinus Murr.	Bombacaceae	Durian (King Fruit)	Fruit, Seed	b-galactosidase was isolated from 43 sulphur containing constituents were found, contains esters, sulphur containing compound, ketones, alcohols and ethyl-2methyl butanoate was found to have highest odour impact among the non-sulfurus odourants	[19, 79-82]
Eclipta prostrata	Asteraceae	Kiiridiya (False daisy)	Whole Plant	-	[19, 39, 45, 46, 49]
Elettaria cardamomum	Zingiberaceae	Enasal (True Cardamom)	Seed	-	[18, 39, 45]
Euphorbia hypericifolia L.	Euphorbiaceae	Dadakiriya (Pillpod Sandmat)	Whole Plant	-	[18]
Ficus benghalensis	Moraceae	Maha Nuga (Bengal Fig)	Bark, Root, Latex	-	[39, 48]
Ficus hispida	Moraceae	Kotadibula (Hairy Fig)	Bark	-	[16, 18]
Ficus racemosa	Moraceae	Udumbara (Attikka/(Cluster Fig))	Fruit, Bark	-	[39, 40]
Ficus religiosa Linn.	Moraceae	Bo (Bo Tree)	Fruit, Seed	-	[34, 40]
Glycyrrhiza	Fabaceae	Walmee (Wild	Whole	Decreasing effects on mount latency and intromission latency when 150 mg/kg & 300 mg/kg body weight/day	[16, 18, 19, 39, 45-49, 83,

Plant	Family	Common Name	Part used	Pharmacological action	References
glabra		Liquorise)	Plant	administrated orally by gavage for 28 days on sexually active male rats. Decrease in the mating latency and increase in copulation duration due to reaction of phytochemicals	84]
Gmelina arborea moldenke	Verbanaceae	Ath demata (Candahar-tree)	Bark, root	-	[39]
Grewia orientalis	Tiliaceae	Wel-keliya	Root	-	[19, 39, 47, 49]
Hemidesmus indicus	Periplocaceae	Iramusu (Indian Sarsparilla)	Root	Significant effect on improving sperm count, sperm motility and increasing testosterone level. Increasing testosterone level lead to improve sexual function	[40, 85]
Hibiscus rosasinensis	Mlavaceae	Wada (Hibiscus)	Flower	Reversible suppression of spermatogenesis. It decrease spermatogenic elements of testis and epidymal sperm count at a dose of 125 and 250 mg/kg of body weight. Suppression of spermatogenesis it has a antifertility effect	[19, 47, 49, 86, 87]
Hordeum vulgare	Poaceae	Barli (Cereal Grain)	Seed	-	[40]
Hygrophila spinosa	Acanthaceae	Ikiriya (Marsh Barbel)	Whole Plant	Increase in serum testosterone level in treated animals (50 mg/kg) by (115%), increase in weight of testes (8.0%). It stimulate Leydig cells and increased serum testosterone level	[18, 19, 39, 48, 88]
Ipomiea mauritiana	Convolvulaceae	Kiribadu (Gient Potato)	Root	Significant increase in the sperm density and the sperm motility along with increase in the testis, and epididymis. Presence of β-sitosterol in the root, likely to enhance the process of spermatogenesis as it is evident from histomorphological studies.	[16, 18, 19, 39, 40, 45-49, 89]
Ipomoea pestigridis	Convolvulaceae	Diwipahuru (Tiger's Paw)	Whole Plant	-	[19, 47, 49]
Leptadenia reticulata W&A.	Apocynaceae	Diwatta	Whole Plant	Effect of chloroform extract at 50, 100, 250 mg/kg, on male rats for shows significantly increase in mount, intromission interval, number of ejaculations and decreased latency of first mount as well as the increase in post ejaculation time. It was due to significant weight gain in testis, seminal vesicles, prostate gland, vasdeferences, Epididymis.	[16, 90]
Madhuca longifolia	Sapotaceae	Mee (South Indian Mahua)	Seed	Sperm concentration increase significantly, live spermatozoa was also increase, Semen volume was also increase	[16, 18, 40, 91, 92]
Magnolia fuscata	Magnoliaceae	Madanakama	Seed, Flower, Bark, Root	-	[39]
Mesua ferrea	Calophyllaceae	Na (Ceylon Ironwood)	Flower	-	[18]
Microstylis wallichii Lind.	Orchidaceae	Osabiya	Tuber	-	[16, 18]
Microtylis. Spp.	Orchidaceae	Diu	Tuber, Root	-	[16, 18]
Moringa oleifera	Moringaceae	Murunga (Drumstick tree)	Fruit, Bark, Seeds, Leaves,	Extract of 100, 200 and 400 mg/kg significantly increased the Mounting Frequency, Intromission Frequency and Ejaculation latency with reduction in	[60, 93-99]

Plant	Family	Common Name	Part used	Pharmacological action	References
			Root	Mounting Latency, Intromission Latency and Post Ejaculatory Interval. Also significantly increased the libido. Suppression of monoamine oxidase type B and phosphodiesterase type 5 activities and increased testosterone	
Mucuna pruriens	Fabaceae	Vaduru Me (Cowitch Plant)	Seed	Increase in the mount, intromission interval, number of ejaculations and decrease the mount latency, intromission latency, post ejaculatory latency and Intromission interval at 150, 200, 250 mg/kg, dose in wistar albino rats and Increase testosterone	[16, 18, 19, 39, 40, 48, 49, 100]
Myristica fragrans Houtt	Myristicaceae	Sadikka (Nut Meg)	Seed	Extract of dry kernel at 100, 250 & 500 mg/kg for 7 days on male rat significantly increase mounting frequency, intromission frequency, intromission latency, erections as well as aggregate of penile reflexes and caused significant reduction in mounting latency and penile erection.	[19, 34, 39, 40, 48, 60, 79, 101]
Operculina turpethum	Convolvulaceae	Tirasthawalu	Whole Plant	-	[18]
Paperver somnifera	Papeveraceae	Abin (Opium)	Latex	-	[39]
Phyllanthus debilis	Euphorbiaceae	Pitawakka (Chanca Piedra)	Whole Plant	-	[18]
Phyllanthus emblica L.	Euphorbiaceae	Nelli (Emblic)	Fruit	Significantly increased sperm concentration and testosterone levels, while decreasing corticosterone levels, malondialdehyde levels, sperm head abnormalities, and acrosome-reacted sperm, diminish testicular histopathology	[18, 19, 39, 40, 45, 46, 49, 102, 103]
Piper longum	Piperaceae	Tippili (Long Pepper)	Fruit	-	[16, 18, 39, 45, 46, 49, 60]
Plumbago zeylanica Linn.	Plumbaginaceae	Rathnitol (Fire Plant)	Root	When administered at 150, 300 and 450 mg/kg body weight shows pro-sexual stimulatory effects in male rats	[19, 39, 40, 45, 49, 104]
Punica granatum	Punicaea	Delum (Pomegranate)	Fruit	Significant increase in Mounting Frequency, Intromission Frequency, Intromission Latency and caused a significant reduction in Mounting Latency and Post Ejaculatory Intervals, It also significantly increased Mounting Frequency with Penile anaesthetization as well as frequencies of Erection, Quick and Flips, Long Flips and the aggregate of penile reflexes with penile stimulation	[16, 46, 105, 106]
Randis dumatorum	Rubiaceae	Kukurumuwan (Emetic nut)	Fruit	-	[46]
Roscoea procera Wall	Zingiberaceae	Kakoli (Purple Roscoea)	Whole Plant	-	[40]
Saccharum officinarum Linn.	Poaceae	UK (Sugarcane)	Root	-	[16, 18, 45, 48, 49]
Saccharum spontaneum Linn.	Poaceae	Kasa	Whole Plant	-	[16, 19, 40, 50]
Saussurea lappa	Asteraceae	Suwadakottam (Indian Costus)	Bark, Root	Lead to increase serum levels of follicle stimulating hormone, luteinizing hormone, testosterone, and prolactin, sperms count, vitality, morphology index, total motility, progressive motility, and proliferating cell nuclear antigen protein expressions in spermatogonia. Preventive and curative effects against Ethephon-induced reproduc-	[18, 46, 107]

Plant	Family	Common Name	Part used	Pharmacological action	References
				tive toxicity in rats.	
Scindapsus officinalis Schott	Arecaceae	Gaja Pippali (Oriental Cash-ew)	Fruit	-	[16, 18, 19, 39, 40, 46, 50]
Semicarpus coriacea	Anacardiace-ae	Senkottan (Badulla)	Fruit	-	[19, 39, 45]
Sesamum in-dicum	Pedaliaceae	Tala (Sesame)	Seed	Significantly increasing body weight gain, seminal pa-rameters, testosterone level, and body antioxidant activi-ties and Promote fertility due to both their testos-terone-increasing effects and their antioxidant effects	[40, 45, 47, 49, 108]
Sida cordifolia	Malvaceae	Babila (Flannel Weed)	Root	No spermicidal or toxic effect, significant enhancement in the sperm parameters, reduction in abnormalities and increase in viability of sperms	[16, 18, 19, 39, 41, 45-49, 109]
Solanum melongena Linn.	Solanaceae	Elabatu (Egg Plant)	Root	-	[16, 19, 34]
Solanum vir-ginianum Linn.	Solanaceae	Katuwalbatu (Wild eggplant)	Whole Plant	-	[16, 18, 19]
Sphaeranthus indicus	Asteraceae	Mudamahana (East Indian Globe Thistle)	Leaf	-	[16, 45]
Stereospermum chelonoides	Bignoniaceae	Palol (Stereo-spermum)	Bark, Root	-	[39]
Syzigium cumini	Myrtaceae	Madan (Black Plum)	Bark, Fruit, Seeds	-	[46]
Terminalia bellirica	Combretaceae	Bulu (Baheda)	Fruit	Total cholesterol content is increased while protein con-tent and epididymal sperm count were significantly de-creased and weights of testis and accessory reproductive organs. The diameter of testis, somniferous tubules and Leydig cells nuclear were decreased. The spermatogenic elements like, spermatogonia, spermatocytes and sper-matids in the testis were reduced significantly as well as sperm count in cauda epididymis due to non-availability of androgens in T. bellirica barks extracts	[19, 39, 45, 46, 49, 110, 111]
Terminalia chebula	Combretaceae	Aralu (Chebulic Myrobalan)	Fruit	Significant impairment in the spermatogenesis and spermeogenesis process of mice. Presence of potent antifertility agents in the plant extract	[19, 39, 40, 45, 46, 49, 60, 112]
Thysanolaena latifolia	Poaceae	Kusathana (Asian broom Grass)	Root	-	[18]
Tinospora cor-difolia (Willd)	Menisperma-ceae	Rasakida (Heart Leaved mooseed)	Stem, Whole plant	Stem at higher concentration (400 mg/kg body weight) showed significant aphrodisiac activity on male wistar albino rats as evidenced by an increase in number of mounts and mating performance. On the other hand, hydro alcoholic extract at lower dose (200 mg/kg body weight) and aqueous extract (400 mg/kg body weight) showed moderate aphrodisiac property	[34, 39, 40, 45, 113, 114]
Tribulus ter-restris	Zygophyl-laceae	Gokatu	Whole Plant	Increase erection quality in animals. Stimulate sexual desires due to its steroidal saponin protodioscin	[16, 18, 19, 36, 39, 40, 45, 47-49, 54, 115, 116]

Plant	Family	Common Name	Part used	Pharmacological action	References
Triticum aestivum L.	Poaceae	Thirigu (Wheat)	Seed	-	[16, 40]
Valeriana jatamansi Wall	Valerianaceae	Jatamamsa (Spikenard)	Seed	-	[19, 45, 39]
Vanda tessellata (Roxb.) Hook.	Orchidaceae	Aratta (Snap Ginger)	Root	Extract of flowers of V. tessellata at doses of 50 and 200 mg/kg, p. o. were found to increase mating performance, and tend to increase the male/female ratio resulting offspring. The alcohol extract was devoid of any conspicuous general toxicity	[16, 18, 39, 117]
Vetiveria zizaniodes	Poaceae	Sawandara (Vetivera grass)	Root	-	[18, 39]
Vigna mungo	Fabaceae	Udu (Black Gram)	Seed	-	[16, 18, 19, 39, 40, 47-49]
Withania somnifera Linn	Solanaceae	Amukkara (Winter cherry)	Root, Whole Plant	Serum testosterone levels significantly increased and sperm count, semen volume, sperm motility increase	[16, 18, 19, 34, 39, 45-49, 118-120]
Woodfordia fruticosa	Lithraceae	Malita (Flame Bush)	Flowers	-	[46]
Zingiber officinale Roscoe	Zingeberaceae	Inguru (Ginger)	Rhizome	-	[16, 46]

4. Conclusion

This review focuses on plants with aphrodisiac potential that are being used in the traditional system of medicine in Sri Lanka. Some medicinal plants are used in traditional formulas to enhance the performance, Vigor, and vitality of a person. The aphrodisiac potential of a plant can be used to improve sexual behavior and performance. Scientists from various fields are investigating new plants with aphrodisiac potential because of the safety and fewer side effects of herbal formulas. Further investigation of plants with aphrodisiac potential will lead to the isolation of chemical compounds which might be applicable to treat sexual dysfunction. Thus, these plants should be subjected to in vitro and in- vivo studies to determine their effectiveness as well as efficacy. Aphrodisiacs can be used directly or indirectly to treat sexual dysfunction and increase virility. Therefore, the demand for natural aphrodisiacs requires further studies to properly understand their effects on human and safety profile. The use of aphrodisiacs can be harmful due to unavailable data on safety, mechanism of action, and knowledge to support their extensive use in procreation. Isolated and characterized active plant components utilized to boost sexual performance and virility can bring about a radical transformation in today's world.

Abbreviations

ED	Erectile Dysfunction
NO	Nitric Oxide
cGMP	Cyclic Guanosine Monophosphate
GC	Guanylyl Cyclase
PDE-5	Phosphodiesterase Type 5 Enzyme
PKG	Protein Kinase
PGRg3	Panx Ginsenoside 3 Beta

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Author Contributions

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Conflicts of Interest

The authors declare no conflicts of interest.

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