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Aphrodisiac agents from Medicinal Plants: A Review

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ABSTRACT

This paper presents a review of plants identified from various ethno botanical surveys and folklore medicinal survey with aphrodisiac activity. An aphrodisiac is defined as an agent that arouses sexual desire. Erectile dysfunction (ED) or male impotence is defined as the inability of a man to achieve and maintain an erection sufficient for mutually satisfactory intercourse with his partner. Sexual health and function are important determinants of quality of life. To overcome the problem of sexual (or) erectile dysfunction various natural aphrodisiac plants potentials are preferred. This review discuss about aphrodisiac potential of plants, its botanical name, Common name, family, part used and references, which are helpful for researcher to development new aphrodisiac formulations.

Keywords: Erectile dysfunction, Male impotence, Aphrodisiac, Herbal drugs, Review.

INTRODUCTION

Aphrodisiac is the word derived from Aphrodite, the Greek goddess of sexual, love and beauty. An aphrodisiac is defined as an agent (food or drug) that arouses sexual desire. From time immemorial man's endeavour have been to increase his sexual powers. When man did not know metals and used only stones he exhibited his sexual powers by ritual dances accompanied by hunting. This lead early man was motivated by his quest for food, sex and self-preservation. The possibility of bioactive aphrodisiacs which may be derived from plants, animals or minerals, has been attractive throughout recorded history. Aphrodisiac are mentioned there as Vajikaranas, the

word vaji meaning horse and karanta meaning making i.e. Measure to excite lust by charms etc. Many natural substances have historically been known as aphrodisiacs in Africa and Europe, such as Yohimbine and the Mandrake plant, as well as ground Rhinoceros horn in the Chinese culture and "Spanish fly" which is actually toxic[1-3].Sexual relationships are some of the most important social and biological relationship in human life. Male impotence also called Erectile dysfunction (ED) is a common medical condition that affects the sexual life of millions of men worldwide [4-5] . Erectile dysfunction is defined as the persistent inability to obtain and maintain an erection sufficient for naturally satisfactory intercourse. Sexual dysfunction is a serious medical and social symptom that occurs in 10-52% of men and 25-63% of women. It is the repeated inability to achieve normal sexual intercourse male impotence (or) ED is a significant problem that may contribute to infertility function decreases spontaneously with advanced aging [6]. It occurs commonly in middle aged and older men. Erectile dysfunction is adversely affected by diabetes mellitus, antihypertensive, antipsychotic, antidepressant therapeutic drugs. Organic causes of ED like Hypogonadism, hyperprolactinaemia, and neurological disorders. Treatment of ED involves several natural aphrodisiac potentials. Aphrodisiac is described as any substance that enhances sexual pleasure. Sexual dysfunction caused by various factors such as psychological disorders like Anxiety, depression, stress, fear of sex, neurological disorders, stroke, cerebral trauma, Alzheimer, Parkinson's disease and chronic disorders–diabetes, hypertension, vascular insufficiency, Atherosclerosis, penile disease–phinosis, peyronies, life style–chronic alcohol abuse, cigarette smoking, aging, decrease in hormone level with age. Systemic diseases – cardiac, hepatic, renal, pulmonary, and cancer [7].

The importance of sexuality in human life is well recognized in the Ancient Indian medicine ayurveda as an entire specially is devoted to it under the name "Vijakarna" or virilification therapy. Vajakarna therapy includes aphrodisiacs for erectile dysfunction, causes of infertility, spermatogenesis, semenogenesis, reproduction, methods of correcting defective semen and sexual satisfaction[8].

Mechanism involved in Aphrodisiac potentials

On sexual stimulation (visual (or) otherwise the famines of the axons of parasympathetic nerves release nitric oxide (NO) gas. The gas diffuses into smooth muscle cells that line those arteries of the corpus carvenosum (spongy erectile tissue) and activates the enzyme guanylate cyclase (GC). The later converts the nucleotide guanosine triphosphate (GTP) into cyclic guanosine monophosphate (cGMP). The cGMP in turn causes the smooth muscle cells around the penis to relax, leading to dilation and increased flux of blood into the penile tissue. This blood is essentially trapped in the penis and results in an erection. The erection ceases after a while because cGMP is hydrolyzed by phosphodiesterase type-5 enzyme (PDE-5) into inactive GMP. (The PDE-5 enzyme resides in the penile tissues). Aphrodisiac potentials inhibit the hydrolyzing action of PDE-5 with the result that active cGMP can accumulate. 'Undisturbed' and prolong the erection through increased blood flow [9-10].

Plants containing aphrodisiac potentials

Sr.No.	Name of Plant	Common name	Family	Part used	Reference
1.	*Abelmoschus esculantus* (L.)	Bhindi	Malvaceae	Root	[11]
2.	*Abelmoschus moschatus*	Musk mallow	Malvaceae	Seed	[12-13]
3.	*Abrus preacatorium* Linn.	Ganja	Fabaceae	Seed	[14]
4.	*Abrus precatorius* L.	Crab's Eye	Paplionaceae	Seed	[15-16]
5.	*Abutilon indicum* (Linn.)	Thuthi	Malvaceae	Seed, root, bark, leaf	[12]
6.	*Acacia catechu* Willd.	Catechu	Mimosaceae	Heartwood	[12,18]
7.	*Acacia nilotica* L. Willd.	Gum Arabic tree	Fabaceae	Bark	[19]
8.	*Achyranthes aspera Linn.*	Apamarg, Latjeera	Amaranthaceae	Root	[11]
9.	*Aconitum heterophyllum* Wall.	Attesh	Ranunculaceae	Root	[11]
10.	*Acorus calamus* Linn.	Sweet flag	Araceae	Rhizome	[20-21]
11.	*Actiniopteris radiata* Sw.	Morshikha	Actinopteridaceae	Whole plant	[22]
12.	*Adenanthera pavonina*	Baragunchi	Mimosaceae	Bark, seeds, leaves	[23]
13.	*Alchornia floribunda* Mull.	Niando	Euphorbiaceae	Root	[24]
14.	*Allium tuberosum*	Chiense chive	Zingiberaceae	Seed	[25-26]
15.	*Allium sativum* L.	Garlic	Liliaceae	Bulb	[12,14,28]
16.	*Aloe excels* Berger	Zimbabwe Aloe	Asphodelaceae	Leaf	[29]
17.	*Alpinia galanga* Willd.	Java galangal	Zingiberaceae	Rhizome	[30]
18.	*Amaranthus spinosus L.*	Chaulai	Amaranthaceae	Leaves, Whole plant	[11]
19.	*Anacyclus pyrethrum*	Akarakarabha	Compositae	Root	[31]
20.	*Asparagus racemosus* Willd.	Asparagus	Liliaceae	Root	[32-33]
21.	*Arachis hypogaea Linn.*	Peanut	Fabaceae	Seeds	[23]
22.	*Argyreia nervosa*	Adhoguda	Convolvulaceae	Root	[34]
23.	*Artocarpus heterophyllus Linn.*	Jack tree	Moraceae	Fruit, Seed, Leaves, root	[23]
24.	Azadirachita indica	Neem	Meliaceae	Root	[11]
25.	Bacopa monnieri L.	Brahmi	Scrophulariaceae	Whole plant	[11]
26.	*Bauhinia tomentosa* Linn.	Manja Mandaram	Caesalpiniaceae	Seed	[12]
27.	*Bauhinia vahlii*	Camel's Foot climber	Caesalpiniaceae	Seed	[12]
28.	*Bauhinia variegate* Linn.	Bauhinia	Caesalpiniaceae	Bark	[12]
29.	Benincasa hispida Cogn.	Ash gourd	Cucurbitaceae	Fruit	[12]
30.	*Blepharis edulis Linn.*	Utangan/ Shikhi	Acanthaceae	Seeds	[35]
31.	*Boerhavia diffusa L.*	Punarnava	Nyctaginaceae	Root	[11]
32.	*Bombax ceiba* Linn.	Silk-Cotton Tree	Bombacaceae	Bark	[12]
33.	*Boesenbergia rotunda* L.	Temu kunci	Zingeberaceae	Rhizomes	[25,36]
34.	*Bussea occidentalis*	Kpayeli	Caesalpiniaceae	Bark, seed	[37]
35.	*Butea frondosa* Roxb.	Flame-of-the-forest	Papilionaceae	Whole plant	[12, 25]
36.	*Cajanus cajan* (L.) Millsp.	Arhar	Fabaceae	Root	[11]
37.	*Carica papaya* L.	Papita	Caricaceae	Fruit	[11]
38.	*Cannabis indica* L.	Indian hemp	Cannabinaceae	Leaf	[38]
39.	*Cannabis sativa*	Bhang	Cannabinaceae	Leaf	[11]
40.	*Capparis erythrocarpus*	Pitipiti	Capparidaceae	Root	[39]

	Isert.				
41.	*Capsicum annuum* L.	Capsicum	Solanaceae	Seed	[40]
42.	*Cassia occidentalis* Linn.	Kasondhi	Fabaceae	Leaf	[41]
43.	*Cassia sieberiana* DC	African laburnum	Caesalpiniaceae	Leaf	[37]
44.	*Chenopodium album* L.	White goosefoot	Chenopodiaceae	Seed	[42-44]
45.	*Chlorophytum tuberosum* Baker.	Safed musli	Liliaceae	Whole plant	[45]
46.	*Cissus quadrangularis* Linn.	Edible stemmed vine	Vitaceae	Root	[12]
47.	*Cocculs cardifolia* Linn.	Guduchi	Menispermaceae	Stem, leaf, Root	[46]
48.	*Cocos nucifera* Linn.	Coconut	Arecaceae	Endosperm	[14,47]
49.	*Cola acuminate* Schott.	Cola	Malvaceae	Seed	[48]
50.	*Cola caricaefolia* G.Don	Bumoguan Leaf	Sterculiaceae	Leaf	[37]
51.	*Cola gabonensis* Schott & Endl.	Kola nut	Sterculiaceae	Fruit	[24]
52.	*Cola nitida* Schott & Endl.	Kola nut	Sterculiaceae	Seed	[24]
53.	*Cola pachycarpa* Schott & Endl.	Kola nut	Sterculiaceae	Seed	[24]
54.	*Cola rostrata* Schott & Endl.	Kola nut	Sterculiaceae	Seed	[24]
55.	*Commiphora caudata* Wt. & Arn.	Emporium of medicinal plants	Burseraceae	Root, leaf	[12]
56.	*Commiphora mukul* Hook. ex Stocks	Indian bdellium tree	Burseraceae	Root, leaf	[12]
57.	*Coriandrum sativum* Linn.	Coriander	Apiaceae	Leaf	[42]
58.	*Corynanthe pachycerus* K Schum.	Ivory coast	Rubiaceae	Stem, Bark	[39]
59.	*Crocus sativus* Linn.	Saffaron	Iridaceae	Stigma	[25]
60..	C*urcuma amada* Roxb.	Mango ginger	Zingiberaceae	Rhizome	[12-13]
61.	*Cymbopogon citrates* (DC.)	Lemongrass	Poaceae	Whole plant	[12]
62.	*Dactylorhiza hatagirea* (D. Don) Soo.	Marsh Orchis	Orchidaceae	Root	[20,49]
63.	*Dalbergia sissoo* Roxb	Shisham	Fabaceae	Wood	[41-42]
64.	*Daucus carota* L.	Carrot	Umbelliferae	Root	[50]
65.	*Desmodium gangeticum* Linn.	Desmodium	Fabaceae (Papilionaceae)	Root	[12]
66.	*Dioscorea bulbifera* Linn	Wild Yam	Dioscoreaceae	Whole plant	[41]
67.	*Diospyros melanoxylon* Roxb.	East Indian ebony	Ebenaceae	Flower	[12, 41]
68..	*Dolichos lablab Linn.*	Flat bean, sem	Fabaceae	Seeds	[23]
69.	Drypetes roxburghii (Wall.) Huru.	Putjev	Euphorbiaceae	Leaf juice	[41]
70.	*Durio Zibenthinus* Murr.	Durian Fruit	Bombacaceae	Fresh fruit	[25,51]
71.	*Echinacea purpurea* L.	Indian head, comb flower	Compositae	Leaves	[52]
72.	*Ekerbegia capensis* Sparrm.	Isongoroit	Meliaceae	Root	[29]
73.	*Emblica officinalis* Gaertn.	Emblic	Euphorbiaceae	Fruit	[53-54]
74.	*Eriodendron Anfractuosum* DC.	White silk cotton tree	Bombaceae	Whole plant	[46]
75.	*Euadenia eminens* Hook.f.	Dinsinkro	Capparidaceae	Root	[39]
76.	*Euphorbia hirta* L.	Dudhi	Euphorbiaceae	Leaves	[37]

77.	*Eurycoma longifolia* Jack	Tongkat Ali	Simarubaceae	Whole plant	[55-63]
78.	*Evolvulus alsinoides L.*	Shankhahuli	Convolvulacae	Whole plant	[23]
79.	*Fadogia agrestis* Schweinf. Ex Heim	Black aphrodisiac	Rubiaceae	Stem	[64-65]
80.	*Ferula hermonis*	Shilsh-el-zallouh	Umbelliferae	Root	[66]
81.	*Ficus arnottiana Miq.*	Paras Pipal	Moraceae	Bark	[67]
82.	*Ficus racemosa L.*	Gular	Moraceae	Fruit	[11]
83.	*Ficus religiosa* Linn.	Peepal tree	Moraceae	Bark	[12]
84.	*Ficus retusa*	Chilkan	Moraceae	Latex	[68]
85.	*Flueggea virosa* Roxb. ex Willd.	White-berry bush	Euphorbiaceae	Whole Plant	[48]
86.	*Garcinia afzelii* Engl	Bitter kola	Guttiferae	Bark	[37]
87.	*Garcinia kola* Heckel	Bitter kola	Guttiferae	Bark	[37]
88.	*Gmelina arborea* Roxb	Coomb teak	Verbenaceae	Fruit	[12]
89.	*Gossypium arboretum Linn.*	Kapas	Malvaceae	Bark, seeds, leaves, root	[23]
90.	*Grewia asiatica* L.	Phalsa	Tiliaceae	Fruit	[42]
91.	Harissonia *abyssinica* Oliv	Zigua	Simaroubaceae	Bark	[37]
92.	*Hibiscus rosa-sinesis*	China rose	Malvaceae	Leaf	[12]
93.	*Hibiscus sabdariffa* Linn.	Roselle	Malvaceae	Seed, leaf	[12]
94.	*Holostemma ada-kodien* Schult.	Holostemma	Asclepiadaceae	Root	[12]
95.	*Hygrophila schulli* (Ham.)	Marsh Barbel	Acanthaceae	Root, leaf, seed	[12]
96.	*Ipomoea mauritiana* Jacq.	Giant potato	Convolvulaceae	Root	[12]
97.	*Kaempferia parviflora*	Krachaidum	Zingiberaceae	Rhizomes	[69]
98.	*Lagenaria vulgaris* Ser.	Bottle gourd	Cucurbitaceae	Fruit	[12]
99.	*Landolphia dulcis* (Sabine) Pichon	Hama-fufu	Apocynaceae	Root, Bark	[39]
100.	*Linum usitatissimum L.*	Alsi	Linaceae	Seed	[11]
101.	*Lepidium meyenii* Walp.	Maca	Brassicaceae	Root	[70-71]
102.	*Mangifera indica* L.	Mango	Anacardiaceae	Bark	[12]
103.	*Maranta arundinacea* Linn.	Arrowroot	Zingiberaceae	Rhizome	[12]
104.	*Massularia acuminata*	Chewing stick	Rubiaceae	Stem	[72]
105.	*Mezoneuron benthamianum*	Senegal	Caesalpiniaceae	Twig or Stem	[37]
106.	*Mimosa pudica* L.	Thottasiniki	Mimosoideae	Aerial part	[73]
107.	*Mirabilis jalapa L.*	Four o' clock plant	Nyctaginaceae	Root	[54]
108.	*Momordica charantia* Descourt	Bitter Melon	Cucurbitaceae	Leaf	[74]
109.	*Mondia whitei* Linn.	White's ginger	Periplocaceae	Root	[75]
110.	*Montanoa tomentosa* Cerv.	Zoapatle	Asteraceae	Whole plant	[76]
111.	*Morinda lucida*	Brimstonetree	Rubiacaeae	Leaves	[77]
112.	*Mucuna pruriens* Linn. DC.	Poonai kali	Fabaceae	Seed	[41]
113.	*Myristica fragrans* Houtt	Nutmeg	Myristicaceae	Seed	[12, 25]
114.	*Nerium indicum* Mill.	Kaner/Kanail	Apocynaceae	Roots	[41]
115.	*Ocimum gratissimum*	Vana Tulsi	Labiatae	Leaves	[12]
116.	*Orchis latifolia Linn.*	Munjaataka	Orchidaceae	Roots	[78]
117.	*Oxyantllus unilocularis* Hiern	Ghana akan	Rubiaceae	Fruit, leaf	[37]
118.	*Palisota hirusta* K. Schum.	Ghana	Commelinaceae	Leaf	[79]
119.	*Panax ginseng*	Ginseng	Araliaceae	Root	[80]
120.	*Passiflora incarnate* L.	Wild Passion	Passifloraceae	Leaf	[81]

		Flower			
121.	*Papaver somniferum* L.	Poppy plant	Papaveraceae	Flower	[12]
122.	*Pausinystalia yohimbe* (K.Schum.)	Pierre Yohimbin	Rubiaceae	Bark	[82]
123..	*Pfaffia paniculata*	Suma	Papilionaceae	Root	[83]
124.	*Pedalium murex*	Burra Gokhru	Pedaliaceae	Whole plant	[84]
125.	*Piper guineense* Schumach.	West African Pepper	Piperaceae	Root	[39]
126.	*Piper officinarum DC*	Chavica officinarum	Piperaceae	Fruit	[12]
127.	*Piper betle* Linn.	Vettrilai	Piperaceae	Leaf	[73]
128.	*Polyalthia suaveolens* Engl.	Polyalthia	Annonaceae	Fruit, root, leaf	[85]
129.	*Polygonatum multiflorum* (L.) All	Solomon's Seal	Liliaceae	Root	[20]
130.	*Prunus amygdalus batsch*	Badama	Rosaceae	Kernel	[23]
131.	*Psoralea corylifolia Llinn.*	Bavaci	Fabaceae	Fruit	[23]
132.	*Punica granatum L.*	Anar	Punicaceae	Fruit	[11]
133.	*Rauvolfia vomitoria*	Afzel. poison devil's pepper	Apocynaceae	Root	[86-87]
134.	*Rhododendron anthopogon* D. Don	Ballu	Ericaceae	Leaf, flower	[20]
135.	*Rhododendron lepidotum* Wall. ex D. Don	Snow Rose	Ericaceae	Leaf, flower	[20]
136.	*Ricinus communis* L.	Castor	Euphorbiaceae	Seed	[12]
137.	*Rosa damascene* Mill	Rose	Rosaceae	Petal	[88]
138.	*Saccharum spontaneum* Linn.	Kasa	Poaceae	Root stock	[14,28]
139.	*Santalum album* Linn.	Sandal wood	Santalaceae	Heart wood	[88]
140.	*Scindapsus officinalis* Schtt.	Gajapipali	Arecaceae	Fruit	[14, 28]
141.	*Securidaca Longepedunculata* Slash	Violet tree	Polygalaceae	Root bark	[25]
142.	*Sesamum indicum* Linn.	Tilli / Til	Pedaliaceae	Seds	[41]
143.	*Shorea robusta geartn*	Sal, Kabba	Dipterocarpaceae	Bark, leaves, fruit	[23]
144.	*Sida cordifolia* Linn.	Country-mallow	Malvaceae	Root, seed	[12]
145.	*Sida acuta* Burn.F.	Bala	Malvaceae	Whole plant	[11]
146.	*Sida rhombifolia*	Bagauli	Malvaceae	Root	[11]
147.	*Solanum indicum* Linn**.**	Indian night Shade	Solanaceae	Root	[12]
148.	*Solanum melongena Linn.*	Brinjal	Solanaceae	Unripe fruit	[12]
149.	*Solanum nigrum* Linn.	Aguaragua	Solanaceae	Berries	[12]
150.	*Sphaeranthus africanus* Linn.	Botobotonisan	Asteraceae	Whole plant	[12]
151.	*Sphaeranthus indicus* Linn.	Mundi	Asteraceae	Seeds	[11]
152.	*Strychnos nux-vomica* Linn.	Strychnine tree	Loganiaceae	Seed	[89]
153.	*Syzygium aromaticum* (L.) Merrill & Perry	Clove	Myrtaceae	Dried flower bud	[90-91]
154.	*Tabernanthe iboga* (L.) Nutt.	Iboga	Apocynaceae	Root, bark, stem	[24, 92]
155.	*Tabernanthe manii* Baill.	Tabernanthe	Apocynaceae	Root	[24,92]
156.	*Tamarindus indica* L.	Tamarind	Fabaceae	Bark	[93]
157.	*Tamarix aphylla* (L.) Karst	Athel tamarisk	Tamariaceae	Bark	[42]
158.	*Taxus baccata* Linn.	Birmi	Taxaceae	Leaf	[12,14]

159.	*Terminalia arjuna* Roxb.	Arjuna	Combretaceae	Bark	[12]
160.	*Tinospora cordifolia* (Willd) Miers Hk.	Tinospora	Menispermaceae	Whole plant	[12-13]
161.	*Tribulus terrestris* L.	Puncturevine	Zygophyllaceae	Fruit, seed	[94-97]
162.	*Trichosanthes dioica* L.	Methi	Fabaceae	Seed	[12]
163.	*Trichopus zeylanicus*	Senna	Trichopodaceae	Leaves	[98]
164.	*Turrea heterophylla* Sm.	Ahunanyakwa	Meliaceae	Root, bark, Seed	[39]
165.	*Turnera Aphrodisiaca*	Damiana	Trneraceae	Areal part	[99]
166.	*Tynanthus panurensis* (Bur.) Sandw.	Clavo huasca	Bignoniaceae	Bark, wood	[100-101]
167.	*Vanda tessellata* (Roxb.) Hook. ex Don.	Rasna	Orchidaceae	Flower, Root	[102-103]
168.	*Valeriana jatamansi* Wall.	Jatamansi	*Valerianaceae*	Root	[104]
169.	*Withania somnifera* Linn.	Ashwagandha	Solanaceae	Leaf, Root	[12,41,42]
170.	*Wrightia tinctoria* (Roxb.) R.Br.	Ivory tree	Apocynaceae	Seed, Leaf, bark	[12]
171.	*Zingiber officinale* Roscoe	Gingembre	Zingeberaceae	Rhizome	[48]

CONCLUSION

Most of the natural plants in this review are those with aphrodisiac potentials. In this review some medicinal plants are used in ayurvedic formulations as aphrodisiac potentials to enhance performance as well as to increase vigor and vitality. Herbals drugs have a potential to treat the various types of body ailments. The demand of herbal drugs is increasing day by day in developed as well as developing countries because they are safer and well tolerated as compared to those of allopathic drugs. The information is recorded in plant's scientific name, common name of plant, family, part used for the aphrodisiac activity & reference. Scientists from divergent fields are investigating new plants with an eye to their aphrodisiac usefulness. These plants should be subjected to animal and human studies to determine their effectiveness.

REFERENCES

[1] Ang HH; Chan KL; Gan EK; Yuen KH, *International Journal of Pharmacology*, **1997**, 35, 144-146.
[2] Rosen RC; Ashton AK, *Archives of Sexual Behavior* **1993**, 22(6), 521-543.
[3] Evans WO, *Psychopharmacology Bulletin* **1996**, 5(2), 11.
[4] Montorsi F; Salonia A; A Dehaf Cestari; Guazzoni, *Br. J. Urol*, **2003**, 8,211-216.
[5] Shabsigh B; Anastasiadics AG, *Annu Rev. Med*., **2003**, 45,153-168.
[6] Yakubu MT; Bilbis LS; Lawal M; Akanji MA, *Nigj pure and appl. Sci*. **2003**, 18, 1395-4000.
[7] Guay AT; Spark RF; Bansal S; Cunningham GR; Goodman NF; Nankin HR; Petak SM; Perez JB, *Endocrinol pract* **2003**,9 (1), 78-95.
[8] Sharma JK; Mishravk Varma RC; Agarwal VD, *Sachitra Ayurveda*, 1990, 3, 239-242.
[9] Chew KK; Stuckey BGA; Thompson PL, *Med. J. Aust*. **2000**, 172, 270-283.
[10] Griffin PD; InDiczfalusy E; Khanna J, Research in Human Reproduction Geneva, Switzerland. Editors World Health Organization.**1988**.
[11] Khan & Khan, *Indian J Traditional Knowledge*, July **2005**, Vol. 4 (3), 317-324.

[12] Joy PP; Thomas J; Mathew S; Skaria PB, Medicinal Plants, Kerala Agricultural University, Aromatic and Medicinal Plants Research Station, **1998**.
[13] Thomas J; Joy PP; Mathew S; Skaria BP; Duethi PP; Joseph TS, Agronomic Practices for Aromatic and Medicinal Plants Kerala Agricultural University and Directorate of Arecanut & Spices Development (Min. of Agri., Govt. of India), Calicut, Kerala, India, **2000**.
[14] Meena KA; Bansal P; Kumar S, *Asian Journal of Traditional Medicines* **2009**, 4 (4), 152-170.
[15] Meena Misra; Editorial, *Journal of Medicinal Plants Research* **2009**, 3(10),1
[16] Jahan S; Rasool S; Khan MA; Ahmad M; Zafar M; Abbasi AM, *J. Med. Plants Res*., **2009**, 3(10),809-814.
[17] Husain A; Virmani OP; Popli SP; Misra LN; Gupta MM; Srivastava GN; Abraham Z; Singh AK, Dictionary of Indian Medicinal Plants, CIMAP, Lucknow, India, **1992**, 546.
[18] New TR, A biology of acacias, Oxford University Press, Melbourne, **1984**, 193.
[19] Kala PC, Indigenous uses, *Conservation Biology*, **2005**, 19(2), 368-378.
[20] Kapoor LD, CRC Handbook of Med. Ayurvedic Plants, CRC Press, **1990**, 18.
[21] Willaman JJ; Li HL, *J. Nat. Prod. Suppl*., 33 (3A), **1970**
[22] Sikarwar RLS; Pathak B; Jaiswal A, *Indian Journal of Traditional Knowledge*, **2008**, 7(4), 613-617.
[23] Agrawal SS, "Clinically useful herbal drugs" Published by Ahuja Publications, Delhi; **2005**, 100-123.
[24] Cousins D; Huffman MA, Medicinal properties in the diet of gorillas: an ethno-pharmacological evaluation, African Study Monographs, **2002**, 23(2), 65-89.
[25] Sumalatha K; Kumar SA; Lakshmi SM, *International Journal of Pharmacy & Therapeutics*. **2010**,1, 10-18.
[26] Kojima A; Nagato Y; Hinata K, *Japan J. Breed*., **1991**, 41, 73-83.
[27] Choudhary R, *Pak. J. Physiol*., 2008, 4(2), 7-9.
[28] Chopra RN; Nayar SL; Chopra IC, Glossary of Indian medicinal plants, NISCIR, CSIR, Delhi, **2002**.
[29] Gundidza GM; Mmbengwa VM; Magwa ML; Ramalivhana NJ; Mukwevho NT; Ndaradzi W; Samie A, African Journal of Biotechnology, **2009**, 8 (22),6402-6407.
[30] Anand RM; Nandakumar N; Karunakaran L; Ragunathan M; Murugan V, A Survey of medicinal plants in Kollimalai hill tracts, Tamil Nadu, Natural Products Radiance, **2006**, 5(2), 139-143.
[31] Sharma Vikas; Thakur Mayank; Chauhan NS; Dixit VK, *scientia pharmaceutica*, 2009, 77, 97-110.
[32] Satyavati GV; Raina MK; Sharma M, Medicinal Plants of India, Vol. 1., Ind. Council on Med. Res., New Delhi, **1976**.
[33] Dange PS; Kanitkar UK; Pendse GS, *Planta Medica*, **1969**,17, 393.
[34] Subramoniam A; Madhavachandran V; Ravu K; Anuja VS, *journal of Endocrinology & Reproduction*, **2007**, 11(2),82-85
[35] Pandey Milind ; Pathak Anupam, *International Journal of PharmaTech Research*, **2009**, 1(3),769-776.
[36] Ching LYA; Wah ST; Sukari AM; Lian CEG; Rahmani M; Khalid K, *The Malaysian Journal of Analytical Sciences*, **2007**, 11(1), 154-159.
[37] Sugiyama Y; Koman J, The Flora of Bossou: its utilization by Chimpanzees and Humans, African Study Monographs, **1992**,13(3), 127 -169.

[38] Grierson Abraham G, *The Indian Antiquary*, **1894**, 23, 260–262.
[39] Agbovie T; Amponsah K; Crentsil OR; Dennis F; Odamtten GT; Djan WO, Conservation and Sustainable Use of Medicinal Plants in Ghana Ethnobotanical Survey, **2002**.
[40] Elferink RGJ, *Journal of the History of Sexuality*, **2000**, 9(1/2), 25-36.
[41] Singh KP; Kumar V; Tiwari KR; Sharma A; Rao CV; Singh RH, *Advances in Biological Research* **2010**, 4(1), 65-80.
[42] Jaiswal S; Singh SV; Singh B; Singh HN, *Natural Products Radiance*, **2004**, 3(4), 284-292.
[43] Burkill HM, The useful plants of West Tropical Africa, Families A–D. Royal Botanic Gardens, Kew, United Kingdom, **1985**, 2(1) ,1960.
[44] Vanwyk BE; Gericke N, People's plants: a guide to useful plants of southern Africa, Briza Publications, Pretoria, South Africa, **2000**, 351.
[45] Maiti S; Geetha KA, Horticulture Floriculture (Ornamental, Medicinal & Aromatic Crops) Medicinal and Aromatic Plants in India, **2007**.
[46] Prasanth PR; Kumar A, *International Journal of Pharma Research and Development* – Online, **2008**, 9: 1-9.
[47] Dahanukar SA; Thatte UM, Therapeutic approaches in Ayurveda Revisited, Poppular Prakashan, Mumbai, **1989**, 109-10.
[48] Mugisha MK; Origa HO, Traditional herbal remedies used in the management of sexual impotence and erectile dysfunction in western Uganda, African Health Sciences, **2005**, 5(1), 40-49.
[49] Thakur M; Dixit VK, Aphrodisiac Activity of *Dactylorhiza hatagirea* (D.Don) Soo in Male Albino Rats, Evid Based Complement Alternat. Med., **2007**, 4(1), 29–31.
[50] Woys WW; Heirloom Vegetable Gardening, New York, Henry Holt and Company, **1997**.
[51] Weenen H; Koolhaas EW; Apriyantono A, *J. Agric. Food Chem.*, **1996**, 44(10), 3291-3293.
[52] Laughlin MG, Medicinal Plant review, *Aust. J. Med. Herbalism* 4 (4), **1992**.
[53] Cynthia W, Love Potions - a guide to aphrodisiacs, Optima Books, **1993**.
[54] Ahmad SS, *Pak. J. Bot.*, **2007**, 39(2), 355-375.
[55] Ang HH; Lee KL; Kiyoshi M, *J. Basic Clin. Physiol. Pharmacol*., **2004**, 15(3-4), 303-309.
[56] Ang HH; Ngai TH; Tan TH, *Phytomedicine*, **2003**,10(6-7), 590-593.
[57] Ang HH; Cheang HS, *Arch. Pharm. Res*., **2001**, 24(5),437-440.
[58] Ang HH; Ngai TH, *Fundam. Clin. Pharmacol*., **2001**, 15(4), 265-268.
[59] Ang HH; Ikeda S; Gan EK, *Phytother. Res.*, **2001**,15(5), 435- 436.
[60] Ang HH; Cheang HS; Yusof AP, *Exp. Anim*., **2000**, 49(1) , 35-38.
[61] Ang HH; Sim MK, *Arch. Pharm. Res*., **1998**, 21(6), 779-781.
[62] Ang HH; Sim MK, *Biol. Pharm. Bull*., **1998**,21(2), 153-155.
[63] Ang HH; Chan KL; Gan EK; Yuen KH, *Pharmaceutical Biology*,35(2), **1997**, 144-146.
[64] Yakubu MT; Adewmi MA; Oladiji TA, *Research Journal of Medicinal Plants*, **2008**, 2(2), 66-73.
[65] Yakubu MT; Akanji MA; Oladiji AT, *Asian Journal of Andrology*, **2005**, 7(4), 399- 404.
[66] Hadidi KA; Aburajai T; Battah AK, *Fitoterapia*, **2003**,74, 242-246.
[67] Bakshi DNG; Sharma PS; Pal DC, A Lexicon of Indian Medicinal Plants. Vol 2, Naya prakashan, New Delhi, **2001**, 190.
[68] Swapnadeep Parial; Jain DC; Joshi S.B, *Drug Invention today* **2010**, 2(1) ,96-101 .
[69] Chaturapanich G; Chaiyakul S; Verawatnapakul V; Pholpramool, *Reproduction research*, **2008**, 136, 515-522.

[70] Gonzales GF; Gasco M; Cordova A; Chung A; Rubio J; Villegas L, *Journal of Endocrinology*, **2004**,180, 87–95.
[71] Gonzales GF; Cordova A; Vega K; Chung A; Villena A; Gonez C, *Journal of Endocrinology*. **2003**,176, 163–168.
[72] Yakabu MT; Adewumi MA; Akanji AT; Oladiji, *Journal of ethanopharmacology*, **2008**, 118, 508-513.
[73] Sankaranarayanan S; Bama P; Ramachandran J; Kalaichelvan TP; Deccaraman M; Vijayalakshimi M; Dhamotharan R; Dananjeyan B; Bama SS, *Journal of Medicinal Plants Research*, **2010**,4(12), 1089-1101.
[74] Sharma VN, *Indian J. Med. Res*., **1960**, 48(4),471-47.
[75] Watcho P; Fotsing D; Zelefack F; Nguelefack TB; Kamtchouing P; Tsamo E; Kamanyi A, *Indian J. Pharmacol*., **2006**, 38(1),33-37.
[76] Zepeda RER; Gloria LE; Lopez GM; Villarreal LM; Chávez RE; Torres MJ, *Fitoterapia*, **2009**,80, 12–17.
[77] Yinusa Raji; Olumide S; Akinsomisoye Toyin M; Salman, *Asian J Androl* **2005**,7(4), 405-410.
[78] Thakur M; Dixit VK, *Sex Disabil*. **2008**, 26, 37–46.
[79] Benson BB; Berko AY; Berko MAJ; Coulibaly KW; Ehile EE, *European Journal of Scientific Research,* **2008**, 22(4), 533-538.
[80] Izzo; Angelo A; Mariana amato, *Fitoterapia*, **2000**, 71, S1-S5.
[81] Gilman FE, *Passiflora incarnata* -- Wild Passion Flower, Series of the Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Fact Sheet FPS-457, 1999,1-3
[82] Fabricant SD; Farnsworth RN, *Environmental Health Perspectives*, **2001**,109(1), 69-75.
[83] Arletti R; Benelli A; Cavazzuti E; Scarpetta G; Bertolini A, *Psychopharmacology (Berl).* Mar; **1999**,143(1),15-19.
[84] Balamurugan G., Muralidharan P., Polapala S. *Turk J Biololgy*, **2010**; 34:153-163.
[85] Bouquet A; Cave A; Paris R, Plantes medicinales du Congo-Brazzaville (III) Medicinal Properties in the Diet of Gorillas 75 plantes medicinales et phytotherapie, Tome, **1971**,2, 154-158.
[86] Ogunlesi M; Okiei W; Ofor E; Awonuga O, *Journal of Natural Products*, **2009**,2, 89-97.

[87] Principe P. The economic significance of plants and their constituents as drugs In: Wagner H, Hikino H, Famsworth NR, (Eds.), Economic and Medicinal Research, Academic Press, London, **1989**,3, 1-17.
[88] Garg SC, Essential oils as Therapeutics, *Natural Product Radiance*, **2005**, 4(1),18-26.
[89] Meena KA; Yadav KA; Panda P; Preet K; Rao MM, *Drug Invention Today*, **2010**, 2(5),238-239.
[90] Khan MA, Akseer-e-Azam. Kanpur, India, Matba Nizami, **1886**, 3, 563.
[91] Baytar I, Kitabul Jame' Li-Mufradat il Advia wal aghzia, Cairo, Egypt, Matba Zahiyah Zaaherah Mutawafferah, **1869**,5, 7–9.
[92] Dubois L, *Tabernanthe iboga* Baillon, *Bulliten Agricole du Congo Belgium*, **1955**, XLVI (4), 805-829.
[93] Jain LD; Baheti MA; Jain RS; Khandelwal RK, *Indian Journal of Traditional Knowledge*, **2010**,9(1), 152-157.

[94] Singh KP; Singh PA; Gupta KA; Chaudhary S, *J. Ecophysiol. Occup. Hlth.*, **2009**,9,217-223.
[95] Saudan C; Baume N; Emery C; Strahm E; Saugy M, *Forensic Science International*, **2008**, 178(1), e7-e10.
[96] Gauthaman K; Adaikan PG; Prasad RN, *Life Sci*., **2002**,71, 1385-1396.
[97] Neychev VK; Mitev VI, *J. Ethnopharmacol.*, **2005**,101,319-323.
[98] Subramoniam A; Madhavachandran V; Rajasekharan S; Pushpangadan P, *J of Ethanopharmacology*, Jun; **1997**, 57(1), 21-27.
[99] Suresh Kumar; Reecha Madaan; Anupam Sharma, *International Journal of Pharmacognosy and Phytochemical Research* **2009**, 1(1),1-4
[100] Duke JA, Rodolfo V. Amazonian Ethnobotanical Dictionary, CRC Press, **1994**.
[101] Taylor NDL, The Healing Power of Rainforest Herbs, Square One Publishers, **2005**.
[102] Jain BJ; Kumane CS; Bhattacharya S, *Indian Journal of Traditional Knowledge*, 5(2), **2006**;5(2), 237-242.
[103] Kumar SKP; Subramoniam A; Pushpangadan P, *Indian Journal of Pharmacology*, 32, **2000**,32,300-304.
[104] Maiti S, Breakthrough and research heighlights, National research centre for medicinal and aromatic plants, Newsletter, **2008**, 9(2), 4-5.