



An Overview on Traditional Aphrodisiac Plants found in Maharashtra, India

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ABSTRACT: An agent either food or drug that arouses sexual desire is called “**aphrodisiac**”. The word is derived from *Aphrodite*, i.e. the Greek goddess of sexual, love & beauty. Since ancient time, man uses methods to increase his sexual power either by ritual dances or hunting. History reveals importance of plants as aphrodisiac agents. Sexual relation is important in social & biological relationship in human life. Erectile dysfunction is persistent inability to obtain & maintain erection for naturally satisfying intercourse, it is a condition that affects millions of people worldwide. © 2019 iGlobal Research and Publishing Foundation. All rights reserved.

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INTRODUCTION

An agent either food or drug that arouses sexual desire is called “**aphrodisiac**”. The word is derived from *Aphrodite*, i.e. the Greek goddess of sexual, love & beauty. Since ancient time, man uses methods to increase his sexual power either by ritual dances or hunting. History reveals importance of plants as aphrodisiac agents. Some substances used as aphrodisiac includes Yohimbine & Mandrake plants in Africa, Europe & ground Rhinoceros horn in China (Klinger et al., 1996). Sexual relation is important in social & biological relationship in human life. Erectile dysfunction is persistent inability to obtain & maintain erection for naturally satisfying intercourse, it is a condition that affects millions of people worldwide.

Sexual dysfunction is a serious medical & social problem observed in an average of 32% of males. A population based study in US revealed that prevalence of MSD was 12% in those younger than 59 years, 22% in those 60 – 69 years of age, & 30% in those older than 69 years. (Bacon et al., 2003). As per an estimate over 320 million people in the Westernized nations will be develop MSD by 2025 (McKinlay JB, 2000).

It is a factor contributing to infertility (Yakubu et al., 2003). The problem occurs mainly in middle aged & older men affected by diabetes, hypertension, depression & due to drugs (Guay et al., 2003)

The method of treatment for erectile dysfunction involves several aphrodisiac methods such as vacuum erection devices, surgical Penile Implants, Hormonal treatments (Testosterone) or use of specific drugs like Sildenafil (Viagra), Tadalafil (Cialis), Vardenafil (Levitra) etc. These treatments have some serious side effects, or complications like infections, failure of devices, acceptability, headache, flushing, dizziness, visual disturbances, congestion, priapism, hypertension etc. The treatments are also very costly.

Medicinal plants are used since ancient times; plants can be used directly or in powdered or extract form. Due to their various phytochemical properties, they are used for management of various diseases.

Medicinal plants are used as natural supplements because of their fewer side effects, ready availability & less cost. Plants show significant pharmacological activity. Herbs can be effectively aphrodisiac, moreover isolation & identification of active constituents from plants may bring a dynamic change in the modern world (Malviya et al., 2011)

Best uses of aphrodisiac with no or less side effects are of plant origin. First known such aphrodisiac is Yohimbine from the bark of Yohimbe tree used in West Africa. (Klinger et al., 1996). Other known aphrodisiac includes, Ginseng, Ginger, *Ginkgo*, *Eurycoma* etc. African people use Aloe, Pumpkin etc since years to stimulate & improve sexual performance (Kamtchouing et al., 2002; Orisakwe et al., 2004).

Experimental studies are performed to define claim of efficacy. Most studies targeted one plant at a time (Ratnasooriya & Dharmasiri, 2000). But traditionally two or more plants are used in combination.

For the determination of the safety & effectiveness of these substances for sexual enhancement, it is necessary to test pre-clinically in animals & clinically in human being before consuming these drugs. So, demands of natural aphrodisiac require increasing studies to understand their effects on humans. (Patel, 2011)

The traditional aphrodisiac plants contain active ingredients that includes terpenoids, alkaloids, cardiac glycosides, saponins & flavonoids (Birdis et al., 2008).

The chief mechanism of aphrodisiac action shown by a number of medicinal plants is increase in Serum Testosterone level. Ethanolic extract of *Blepharis edulis* Forssk. roots (Chatterjee et al., 1990), aqueous extracts of *Massularia acuminata* (G. Don) Bullock ex Hoyle roots (Yakubu et al., 2008), exhibits aphrodisiac activity by enhancing testosterone

level. Even they enhance FSH & LH levels. *Panax ginseng* C.A.Mey. show aphrodisiac activity by nitric oxide linked mechanisms; reports showed that it enhances Nitric Oxide synthesis resulting in relaxation of Corpus Carenosum in penis & increase in penile rigidity & girth. (Dubey et al., 1997 & Jirovetz et al., 2005). Further studies are also needed to check the mechanism behind the activity in traditional aphrodisiac plants in combination.

Literature study reveals that few research papers are available on plant improving fertility or impotency in men (Evans,1969; Pallavi et al, 2011; Neychev, 2005, Sabna et al, 2013)

State of Maharashtra is rich in biodiversity. Many plants are used as medicinal and for variety of ayurvedic preparation for curing diseases and related problems since ancient times. Present study enlists the plants with aphrodisiac properties specifically from Maharashtra, India.

METHODOLOGY

Survey of Aphrodisiac plants found all over the world was carried by many people, including Ramandeep Singh, et al, 2012. The plants enlisted by Ramandeep Singh and co-workers were taken into consideration and plants found in flora of Maharashtra were sorted out.

RESULTS & DISCUSSION

The present review was carried out pertaining to the aphrodisiac plants. The results are very interesting that the plants reported in one location, also cross checked for another region. The use of plant or plant parts as aphrodisiac was found same.

Table: Review of Aphrodisiac plants in Maharashtra, India.

Sr. No.	Name of plant	Family	Part used	Reference
1	<i>Abelmoschus esculentus</i> (L.) Moench	Malvaceae	Root	Khan & Khan, 2005
2	<i>Abelmoschus moschatus</i> Medik	Malvaceae	Seed	Joy PP, et al. 2000 & Meena KA, et al, 2009
3	<i>Abrus precatorius</i> L.	Fabaceae	seed	Meena KA, et al, 2009
4	<i>Abutilon indicum</i> (Linn) Sweet.	Malvaceae	seed, root, bark, leaf	Joy PP, et al. 2000
5	<i>Acacia catechu</i> Willd.	Mimosaceae	Heartwood	Joy PP, et al 2000
6	<i>Acacia nilotica</i> (L.) Willd. ex Delile	Fabaceae	Bark	Chandra Prakash Kala, 2005
7	<i>Achyranthes aspera</i> L.	Amaranthaceae	Root	Khan & Khan, 2005

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8	<i>Acorus calamus</i> L.	Acoraceae	Rhizome	Kapoor LD, 1990 and Willium JJ, et al, 1970
9	<i>Adenantha pavonina</i> L.	Mimosaceae	Bark,Seeds,leaves	Agarwal SS, 2005
10	<i>Allium sativum</i> L.	Amaryllidaceae	Bulb	Joy PP, et al 2000; Meena KA, et al, 2009; Chopra, 2002
11	<i>Allium cepa</i> L.	Amaryllidaceae	Bulb	Malviya N , et al., 2011
12	<i>Aloe vera</i> (L.) Burm.f	Asphodelaceae	Gel extracted from leaves	Malviya N , et al., 2011
13	<i>Alpinia galanga</i> (L.) Willd.	Zingiberaceae	Rhizome	Anand RM, et al, 2006
14	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Whole plants	Khan & Khan, 2005
15	<i>Asparagus reacemosus</i> Willd.	Asparagaceae	Root	Satyavati GV, et al, 1976 & Dange PS, et al, 1969
16	<i>Arachis hypogaea</i> L.	Fabaceae	Seed	Agarwal SS, 2005
17	<i>Argyrea nervosa</i> (Burm f.) Bojer	Convolvulaceae	Root	Subramoniam A, et al, 2007
18	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Fruit, Seed, Leaves, root	Agarwal SS, 2005
19	<i>Aristolochia indica</i> L.	Aristolochiaceae	Whole plant	Malviya N , et al., 2011
20	<i>Atylosia scarabaeoides</i> (L.) Benth.	Fabaceae	Whole plant	Malviya N , et al., 2012
21	<i>Azadirachta indica</i> L.	Meliaceae	Root	Khan & Khan, 2005
22	<i>Bacopa monnieri</i> (L.) Pennell	Plantaginaceae	Whole plant	Khan & Khan, 2005
23	<i>Bauhinia tomentosa</i> L.	Caesalpinaceae	Seed	Joy PP, et al, 2000
24	<i>Bauhinia vahlii</i> Wight and Arn.	Caesalpinaceae	Seed	Joy PP, et al, 2000
25	<i>Bauhinia variegata</i> (L.) Benth.	Caesalpinaceae	Bark	Joy PP, et al, 2000
26	<i>Benincasa hispida</i> (Thunb.) Cogn.	Cucurbitaceae	Fruit	Joy PP, et al, 2001
27	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Root	Khan & Khan, 2005
28	<i>Bombax ceiba</i> L.	Bombacaceae	Bark	Joy PP, et al, 2001
29	<i>Boesenbergia rotunda</i> (L.) Mansf.	Zingiberaceae	Rhizome	Sumalatha K, et al., 2010 & Ching LYA, et al., 2007
30	<i>Bryonia laciniosa</i> Linn.	Cucurbitaceae	Seed	Malviya N , et al., 2012
31	<i>Butea frondosa</i> Roxb.	Fabaceae	Whole plant	Joy PP, et al, 2001 & Sumalatha K, et al., 2010
32	<i>Cajanus cajan</i> (L.) Millsp.	Fabaceae	Root	Khan & Khan, 2005
33	<i>Carica papaya</i> L.	Caricaceae	Fruit	Khan & Khan, 2005
34	<i>Cannabis sativa</i> L.	Cannabinaceae	Leaf	Khan & Khan, 2005
35	<i>Capsicum annum</i> L.	Solanaceae	Root	Elferink RGJ, 2000
36	<i>Cassia occidentalis</i> Linn	Fabaceae	Leaf	Singh KP, et al., 2010
37	<i>Cassia sieberianan</i> DC	Caesalpinaceae	Leaf	Sugiyama Y, et al., 1992
38	<i>Celastrus paniculatus</i> Willd.	Celastraceae	Seeds	Malviya N , et al., 2012
39	<i>Chenopodium album</i> L.	Chenopodiaceae	Seed	Jaiswal S, et al., 2004 & Vanwyk BE, et al., 2000
40	<i>Chlorophytum tuberosum</i> Baker.	Liliaceae	Whole plant	Maiti S, et al., 2007
41	<i>Chlorophyllum arundinaceum</i> Baker.	Liliaceae	Root	Malviya N , et al., 2012
42	<i>Cissus quadrangularis</i> Linn.	Vitaceae	Root	Joy PP, et al, 2001
43	<i>Cocculus cordifolius</i> Linn.	Menispermaceae	Stem, Leaf, Root	Prasanth PR, Kumar A, 2008
44	<i>Cocus nucifera</i> Linn	Arecaceae	Endosperm	Meena KA, et al, 2009 & Dahanukar SA, 1989

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45	<i>Commiphora mukul</i> Hook. Ex Stocks	Burseraceae	root, leaf	Joy PP, et al, 2001
46	<i>Coriandrum sativum</i> Linn.	Apiaceae	Leaf	Jaiswal S, et al., 2004
47	<i>Curcuma amada</i> Roxb.	Zingiberaceae	Rhizome	Joy PP, et al, 2001 & Thomas, et al., 2000
48	<i>Curcuma angustifolia</i> Roxb.	Zingiberaceae	Rhizome	Malviya N , et al., 2012
49	<i>Curcuma aromatica</i> Roxb.	Zingiberaceae	Rhizome	Malviya N , et al., 2012
50	<i>Cymbopogon citratus</i> (DC.)	Poaceae	whole plant	Joy PP, et al, 2001
51	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	wood	Singh KP, 2010 & Aiswal S, et al., 2004
52	<i>Daucus carota</i> L.	Apiaceae	Root	Woys WW., 1997
53	<i>Desmodium gangeticum</i> Linn	Fabaceae	Root	Joy PP, et al, 2001
54	<i>Dioscorea bulbifera</i> Linn.	Dioscoreaceae	Whole plant	Singh KP, 2010
55	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	Flower	Joy PP, et al., 2001 & Singh KP, 2010
56	<i>Dolichos lablab</i> Linn.	Fabaceae	Seeds	Agrawal SS., 2005
57	<i>Drypetes roxburghii</i> (Wall) Huru.	Euphorbiaceae	Leaf juice	Singh KP, 2010
58	<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Fruit	Cythia W., 1993 & Ahmad SS., 2007
59	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Leaves	Sugiyama Y, et al., 1992
60	<i>Evolvulus alsinoides</i> L.	Convolvulaceae	Whole plant	Agrawal SS., 2005
61	<i>Ficus arnottiana</i> Miq.	Moraceae	Bark	Bakshi DNG, et al., 2001
62	<i>Ficus racemosa</i> L.	Moraceae	Fruit	Khan & Khan, 2005
63	<i>Ficus religiosa</i> Linn.	Moraceae	Bark	Joy PP, et al, 2001
64	<i>Ficus retusa</i> L.	Moraceae	Latex	Swapnadeep Parial, et al., 2010
65	<i>Ficus bengalensis</i> L.	Moraceae	Latex	Husain A, et al., 1992
66	<i>Gossypium arboreum</i> Linn.	Malvaceae	Bark, Seeds, Leaves, Fruit	Agrawal SS., 2005
67	<i>Grewia asiatica</i> L.	Tiliaceae	Fruit	Aiswal S, et al., 2004
68	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Leaves	Joy PP, et al, 2001
69	<i>Hibiscus lobatus</i> Murr.	Malvaceae	Whole plant	Malviya N, et al., 2012
70	<i>Hibiscus sabdariffa</i> Linn.	Malvaceae	Seed, leaf	Joy PP, et al, 2001
71	<i>Holostemma ada-kodien</i> Schult.	Asclepiadaceae	Root	Joy PP, et al, 2002
72	<i>Hygrophilia auriculata</i> Schum.	Acanthaceae	Seeds	Malviya N, et al., 2012
73	<i>Hygrophilia schulli</i> (Ham.)	Acanthaceae	Root, leaf, Seeds	Joy PP, et al, 2001
74	<i>Ipomoea mauritiana</i> Jacq.	Convolvulaceae	Roots	Joy PP, et al, 2001
75	<i>Jatropha curcas</i> L.	Euphorbiaceae	Seeds	Malviya N, et al., 2012
76	<i>Lagenaria vulgaris</i> Ser.	Cucurbitaceae	Fruit	Joy PP, et al, 2001
77	<i>Linum usitatissimum</i> L	Linaceae	Seed	Khan & Khan, 2005
78	<i>Litsea chinensis</i> Heyne ex. Nees	Lauraceae	Bark	Zamble A, et al., 2008
79	<i>Mallotus philippensis</i> Lam.	Euphorbiaceae	Glandular hair on Fruit	Malviya N, et al., 2012
80	<i>Mangifera indica</i> L.	Anacardiaceae	Bark	Joy PP, et al, 2001
81	<i>Mimosa pudica</i> L.	Mimosaceae	Aerial part	Sankaranarayanan S, et al., 2010
82	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Root	Ahmad SS, 2007

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83	<i>Momordica charantia</i> L.	Cucurbitaceae	Leaf	Sharma VN, 1960
84	<i>Mucuna pruriens</i> (L.) DC.	Fabaceae	Seed	Singh KP, 2010
85	<i>Murdannia edulis</i> (Stokes) Faden	Commelinaceae	Dried root	Malviya N, et al., 2012
86	<i>Myristica fragrans</i> Houtt	Myristicaceae	Seed	Joy PP, et al, 2001 & Sumalatha K, et al., 2010
87	<i>Nerium indicum</i> Mill.	Apocynaceae	Root	Singh KP, 2010
88	<i>Ocimum gratissimum</i> L.	Labiatae	Leaves	Joy PP, et al, 2001
89	<i>Passiflora incarnate</i> L.	Passifloraceae	Leaf	Gilman FE, 1999
90	<i>Papaver somniferum</i> L.	Papaveraceae	Flower	Joy PP, et al, 2001
91	<i>Pedaliium murex</i> L.	Pedaliaceae	Whole Plant	Balamurugan G, et al., 2010
92	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Fruit	Malviya N, et al., 2012
93	<i>Piper betle</i> L.	Piperaceae	Leaf	Sankaranarayanan S, et al., 2010
94	<i>Prunus amygdalus</i> Batsch	Rosaceae	Kernel	Agrawal SS., 2005
95	<i>Psoralea corylifolia</i> Linn.	Fabaceae	Fruit	Agrawal SS., 2005
96	<i>Punica granatum</i> L.	Punicaceae	Fruit	Khan & Khan, 2005
97	<i>Ricinus communis</i> L.	Euphorbiaceae	Seed	Joy PP, et al, 2001
98	<i>Rosa damascene</i> Mill	Rosaceae	Petal	Garg SC, 2005
99	<i>Saccharum spontaneum</i> Linn	Poaceae	Root stock	Meena DA, et al., 2009 & Chopra RN, et al., 2002
100	<i>Santalum album</i> L.	Santalaceae	Heartwood	Garg SC, 2005
101	<i>Sesamum indicum</i> L.	Pedaliaceae	Seeds	Singh KP, 2010
102	<i>Shorea robusta</i> Roth.	Dipterocarpaceae	Bark, leaves, Fruit	Agrawal SS., 2005
103	<i>Sida cordifolia</i> L.	Malvaceae	Root, Seed	Joy PP, et al, 2001
104	<i>Sida acuta</i> Burm.f.	Malvaceae	Whole Plant	Khan & Khan, 2005
105	<i>Sida rhombifolia</i> L.	Malvaceae	Root	Khan & Khan, 2005
106	<i>Solanum indicum</i> L.	Solanaceae	Root	Joy PP, et al, 2001
107	<i>Solanum americanum</i> Mill. Gard	Solanaceae	Whole Plant	Malviya N, et al., 2012
108	<i>Solanum melongena</i> L.	Solanaceae	Unripped Fruit	Joy PP, et al, 2001
109	<i>Solanum nigrum</i> Linn.	Solanaceae	Berries	Joy PP, et al, 2001
110	<i>Sphaeranthus africanus</i> L.	Asteraceae	Whole plant	Joy PP, et al, 2001
111	<i>Sphaeranthus indicus</i> L.	Asteraceae	Seeds	Khan & Khan, 2005
112	<i>Strychnos nux-vomica</i> L.	Loganiaceae	Seed	Meena KA, et al., 2010
113	<i>Syzygium aromaticum</i> (L.) Merrill & Perry	Myrtaceae	Dried flower bud	Khan MA, 1886 & Baytar I, et al, 1869
114	<i>Tamarindus indica</i> L.	Fabaceae	Bark	Jain LD, et al., 2010
115	<i>Tamarix aphylla</i> (L.) Karst	Tamaricaceae	Bark	Jaiswal S, et al., 2004
116	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn	Combretaceae	Bark	Joy PP, et al, 2001
117	<i>Tinospora cordifolia</i> (Willd) Miers	Menispermaceae	Whole plant	Joy PP, et al, 2001 & Thomas, et al., 2000
118	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Fruit, Seed	Singh KP, 2009 & Neychev VK, 2005
119	<i>Tricholepis glaberrima</i> DC	Asteraceae	Aerial part	Zamble A, et al., 2008
120	<i>Trichosanthes dioica</i> L.	Cucurbitaceae	Seed	Joy PP, et al, 2001

121	<i>Vanda tessellata</i> (Roxb.) Hook. ex G. Don.	Orchidaceae	Flower, Root	Jain BJ, et al., 2006 & Suresh Kumar PK, et al., 2000
122	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Leaf, Root	Joy PP, et al, 2001; Singh KP, 2010 & Aiswal S, et al., 2004
123	<i>Wrightia tinctoria</i> (Roxb.) R.Br.	Apocynaceae	Seed, leaf, bark	Joy PP, et al, 2001
124	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Rhizome	Mugisha MK, Origa HO, 2005

CONCLUSION

Maharashtra state of India is rich in biodiversity even in terms of plants with aphrodisiac potentials. Out of **198** plant species reported earlier as aphrodisiac, Maharashtra contains **124** species of plants belongs to **102** genera of **58** Families. The plants enlisted in this reviews are natural and with aphrodisiac potentials. Some plants are used in ayurvedic formulation to overcome erectile dysfunction. Due to the side effects of allopathetic drugs, demand for plant based medication is increasing day by day. So the review helps scientists working on aphrodisiac plants, which gives details of scientific name, family, part used and reference.

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