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REVIEW ON SOME CARDIOPROTECTIVE PLANTS FROM AYURVEDA

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ABSTRACT
Ayurveda, literally meaning the "science of life and longevity" in ancient Sanskrit, is the one of the oldest healing system of India based on lifestyle, diet and herbs. The aim of this review is to highlight the work on cardioprotectives plants of Ayurvedic origin. About 31 plants of Ayurvedic origion have been explained. This review also discusses various chemical constituents and other biological activities of cardioprotective plants. This work stimulates the researcher for further work on the cardioprotective medicinal plants from Ayurveda.
KEYWORDS: Cardioprotective, Ayurveda, medicinal plants.

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INTRODUCTION

The literal meaning of Ayurveda is “science of life,” because ancient Indian system of health care focused views of man and his illness. The Ayurvedic concept appeared and developed between 2500 and 500 BC in India. It is pointed out that the positive health means metabolically well-balanced human beings. According to Ayurveda, the disease evolves from the body due to external factors. It has a vast literature in Sanskrit covering all aspect of diseases, pharmacy and therapeutics. The practice of Ayurveda therapeutics consisted of 8 sections divided into 180 chapters and listed 314 plants, which are used as medicines in India[1]. Ayurvedic herbal medicines mainly based on plants enjoy a respective position today, especially in the developing countries, where modern health services are limited. Safe effective and inexpensive indigenous remedies are gaining popularity among the people of both urban and rural areas including India and China[2]. Medicinal plants, since times immemorial, have been used in virtually all cultures as a source of medicine. The widespread use of herbal remedies and healthcare preparations, as those described in ancient texts such as the Vedas and the Bible, and obtained from commonly used traditional herbs and medicinal plants, has been traced to the occurrence of natural products with medicinal properties[3].

Cardiovascular diseases (CVDs) are the major health problem of advanced as well as developing countries of the world. Hypertension is the common cardiac disease followed by ischemic heart disease (IHD)[4]. In developed western countries there is a trend of a steadily declining mortality from coronary artery disease which lasts more than twenty years. In developing countries there is an opposite tendency of continuous mortality increasing from coronary artery disease. Favourable declining tendency of mortality in developed countries probably results from a combination of factors including aggressive primary prevention of atherosclerotic disease and better management of patients with known coronary artery disease[5]. Although numerous cardiovascular diseases exist, coronary artery disease (CAD) remains the number one cause of death due to cardiovascular disorders. CAD is caused by a collection of plaque (i.e., buildup of cholesterol, calcium, fibrous tissue) inside a coronary vessel. This collection of plaque inside coronary vessels results in a narrowing of coronary arteries (stenosis) that decreases the delivery of oxygen to the heart due to reduced coronary blood flow[6]. There are large number Ayurvedic plants exhibiting cardioprotective activity, the list of some with ayurvedic name, part used, phytoconstituents and other biological activities apart from cardioprotection have been discussed in **Table 1**.

CONCLUSION

There has been an increase in demand for the Phytopharmaceutical products of Ayurveda in Western countries, because of the fact that the allopathic drugs have more side effects. In India Ayurvedic treatment is frequently used for treating various ailments of body. This review makes an attempt to compile some of cardioprotective plants from Ayurveda and also give scientific account of use of Ayurvedic cardioprotective plants. Hence, the present review is focused on an overall out line of plant used in Ayurvedic drug for the further scientific investigation.

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Table 1: A brief description of common cardioprotective plants

S. no.	Botanical/Family name	Ayurvedic name	Part used	Chemical Constituents	Biological activities
1	*Achyranthes aspera*, Amaranthaceae	Apaamaarga	Roots, seeds, flowers	Saponin, achyranthine alkaloids, betaine, tannins	Astringent, emetic
2	*Allium sativum*, Liliaceae	Lashuna	Bulb	Sulphur compounds, Allicin	Antibiotic, bacteriostatic
3	*Anethum graveolens*, Umbelliferae	Shataahvaa	Leaves, seeds	Flavonoids, xanthones coumarins	Lipid lowering, disorders of the gastrointestinal tract
4	*Antiaris toxicaria,* Moraceae	Valkala	Seed, latex	Cardiac glycosides	Circulatory stimulant
5	*Asparagus racemosus,* Asparagaceae	Shataavari	Roots	Saponins-Shatavarins (I–IV)	Adaptogenic, Antibacterial Anti - dyspepsia effects
6	*Bombax mori,* Bombacaceae	Semal	Roots, fruits	Lupeol, hentriacontanol	Anti-inflammatory
7	*Cannabis sativa,* Cannabinaceae	Bhangaa	Seeds, leaves	Cannabinoids	Hallucinogenic, hypnotic, sedative
8	*Cheiranthus cheiri,* Cruciferae	Tudri	Flower	Flavonoids, cardiac aglycones	Antispasmodic, purgative
9	*Cinnamomum tamala,* Lauraceae	Tejapatra	Leaves	Cinnamaldehyde	Carminative, spasmolytic, antidiarrhoeal
10	*Cordia rothii*, Boraginaceae	Lisodaa	Bark	Coumarins, glycol-alkaloids	Astringent
11	*Crataeva nurvala,* Capparaceae	Varuna	Bark	Lupeol	Diuretic, antiurolithic
12	*Delphinium denudatum,* Ranunculaceae	Nirvishaa	Roots	Campesterol, stigmasterol, sitosterol, cholesterol, deltaavenasterol and alkaloids	Astringent, vulnerary
13	*Digitalis purpurea*, Scrophulariaceae	Hritpatri	Leaves	Cardiac glycosides	Cardiotonic
14	*Eugenia uniflora,* Orchidaceae	Pitaanga	Leaves, fruits	Carotenoids, flavonoids	Diuretic, antirheumatic
15	*Linum usitatissimum*, Linaceae	Atasi	Seed	Chlorogenic acid, stearic, oleic, linoleic acids	Demulcent, emollient, laxative, antilipidemic
16	*Garcinia indica*, Guttiferae	Vrkshaamla	Fruit	Polyisoprenylated phenolic pigment, garcinol and its isomer isogarcinol	Antiscorbutic, antibilious cholagogue, cooling
17	*Hibiscus sabdariffa,* Malvaceae	Ambashtthaki	Flowers	Sterols, kaempferol	Digestive, choleretic, antibilious, laxative, diuretic
18	*Juglans regia,* Juglandaceae	Akshoda	Leaves, bark	Monoterpenes, sesquiterpenes, diterpene , triterpene derivatives	Laxative, antiseptic, mild hypoglycaemic, anti-inflammatory
19	*Mimusops elengi,* Sapotaceae	Bakula	Fruit	Steroidal saponin	Purgative, astringent
20	*Morus alba,* Moraceae	Shahtuut	Fruit	Phenolics	Hypoglycaemic
21	*Nelumbo nucifera,*	Kamala	Flowers,	Quercetin, luteolin,	Astringent

	Nelumbonaceae		leaves	alkaloids	and haemostatic
22	*Onosma bracteatum,* Boraginaceae	Gojihvaa	Leaves	Tannins, Glycosides, resins, alkaloids	Cooling, astringent
23	*Punica granatum*, Punicaceae	Daadima	Fruit	Punicalagin, punicalin and ellagic acid	Stomachic, digestive
24	*Pueraria lobata,* Papilionaceae	Vidaari	Root	Pueraria glycosides and puerarol	Antipyretic and spasmolytic agent
25	*Tinospora cordifolia*, Menispermaceae	Guduuchi	Herb	Alkaloidals, including berberine; tinosporol columbin, ,tinosporon, chasmanthin, tinosporic acid	Antipyretic, antiperiodic, Anti inflammatory
26	*Emblica officinalis,* Euphorbiaceae	Aaamalaki	Fruit	Vitamin C, gallic acid	Antianaemic, anabolic, antiemetic, astringent, antidiarrhoeal, bechic, antihaemorrhagic
27	*Coriandrum sativum*, Umbelliferae	Dhaanyaka	Fruit	Volatile oil, coumarins flavonoids	Stimulant, antispasmodic carminative, diuretic stomachic
28	*Prunus cerasus*, Rosaceae	Elavaaluka	Fruit	Flavone glycosides	Diuretic,antiinflammatory
29	*Euryale ferox*, Nymphaeaceae	Makhaann	Seed	Protein	Deobstruent, astringent nervine tonic
30	*Cymbopogon citrates,* Poaceae	Bhuutika	Leaves	Volatile oil	Stimulant, antiperiodic sudorific, anticatarrhal
31	*Psidium guajava,* Myrtaceae	Peruka	Fruit, leaves	Quercetin	Antidiarrhoeal