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Cardioprotective Effect of Traditional Medicine: A Review

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Abstract

Plants have played an important role in meeting the nutritional and other various needs of humans. As humans advanced in medicine, plants became essential to people's health and well-being. The development of technology has pushed people to make greater progress in a short time, causing many heart diseases due to rapid progress, and the use of many drugs has improved and cured the heart. In order to save and protect people's heart health from the effects of drugs, people have returned to nature and used many bioactive substances found in plants to protect the heart, such as antioxidants, flavonoids, anthocyanins, tannins, ellagic acid, terpenes, carbohydrates. It has been shown to improve heart protection and thus reduce the risk of heart disease. The purpose of this review article is to provide people with information and education about naturally occurring drugs and include them in their daily diets to improve heart health and eliminate problems caused by synthetic chemicals.

Keywords: Cardioprotective, Myocardial infraction, Cardiovascular disease.

Introduction

The cardiovascular system consists of the heart and blood vessels that allow blood to circulate throughout the body. It is responsible for transporting oxygen, nutrients and hormones to the body and removing waste from the body. The term cardiovascular disease (CVD) is well known and generally refers to diseases that affect the heart and its parts. Reported cardiovascular diseases include coronary artery disease, congestive heart failure, cardiac arrest, cardiac arrhythmias, and peripheral artery disease.[1]

It was known that number one cause of death globally is due to cardiovascular diseases because annually more people die from heart diseases than from any other grounds. Approximately17.5 million people died from CVDs in the year 2012, representing31% of all global deaths. Of these deaths,7.4 million were due to coronary heart diseases and 6.7 million deaths were due to heart stroke. Out of the 16 million deaths under

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the age of 60 due to non-communicable diseases, 85% are in low and middle-income countries and 40% are caused by CVD [1,2] Myocardial infarction is the acute condition of necrosis of the myocardium that occurs as a result of imbalance between coronary blood supply and myocardial demand. The increasing amount of experimental and clinical evidences reveals the involvement of reactive oxygen species (ROS) in cardiovascular diseases. More specifically in pathological or disease conditions, such as MI, diabetes, or stroke, the production of free radicals may override the scavenging effects of antioxidants leading to oxidative stress. Reactive oxygen species, which possesses highly reactive and toxic properties, can be generated as a result of ischemia and exacerbate the degree of myocardial damage sustained by the ischemic myocardium.[3] Myocardial ischemia-reperfusion (I/R) injury can occur in a wide variety of diseases, from heart attack to acute myocardial infarction, and is an important public health problem. Since there is not enough oxygen in the myocardium, ischemia will cause many changes and ischemia-reperfusion will cause the pain to worsen. Modulation of the adaptive response to ischemic heart disease has become an important research topic. Pharmacological pretreatment plays an important role in reducing tissue damage.[4]

List of (Herbal) Drugs: Used as Cardioprotective

A. Daucus Carota Linn

Daucus carota lives in dry fields and wastelands at lower elevations in the northern United States, from Vermont to Virginia, west to Washington State and California, and north to Canada. Carrot root is used as a diuretic and inotropic agent. The essential oil in the seeds has analgesic and anti-inflammatory activity. Its roots are reported to have hepatoprotective effects. Many phytochemical studies on carrots have demonstrated the presence of many biological substances, including flavonoids and glycosides such as apigenin-4-o-β-glycoside and apigenin. [5,6] Experiments mention the positive inotropic and cardioprotective effects of carrots. Effects of isoproterenol-induced myocardial infarction.[7]

B. Nerium Oleander

Nerium oleander is found in North Africa and the Eastern Mediterranean. Cardiotonic glycosides are naturally occurring plant or animal compounds that are beneficial and beneficial to the heart. Despite its toxicity, oleander has been used in the past as a folk medicine, as an abortifacient, in the treatment of "edema" (congestive heart failure), leprosy, malaria, ringworm, indigestion, and recently it has been reported that oleander leaves have cardiotonic and antibacterial properties. Research studies on antispasmodic, neuroprotective, anti-tumor, immunomodulatory and other effects have been completed.[8' 9] Experimental use: Cardioprotective effect of oleander flower on isoproterenol-induced myocardial oxidative stress in experimental rats.[10]

C. Amaranthus Virdis

Amaranthus virdis is found in tropical and subtropical regions and has many anti-inflammatory, anti-hepatotoxic, anti-inflammatory, anti-allergic and anti-inflammatory properties. Substances include flavonoids, saponins, glycosides, terpenes, amino acids, alkaloids, sugars, phenols, etc. is available. Compounds and proteins. Due to these compounds in amaranth, it has heart-protective, anti-inflammatory and anti-ulcer properties.[11,12] Experimental use of cardioprotective activity of amaranth: Effects on enzymes, cardiac troponin and antioxidant system in rats with experimental myocardial infarction.[13]

D. Coriander

C. sativum is native of the Mediterranean region. In India, it is grown in Andhra Pradesh, Tamil Nadu, Karnataka, Rajasthan and Madhya Pradesh it sex tract provides significant protection from heart failure possibly due to its ability to improve left ventricular functions and baroreflex sensitivity, attenuate lipid peroxidation, and modulate the expression of endothelin receptors. The chemical constituents present in Coriandrum sativum are phenolic acids, phytosterols, and terpenes, flavonoids due to presence of this cardioprotective, antihyperlipidemic, anti-atherogenic, antihypertensive, antiarrhythmic effects are

shown.[14,15] Experimental reference Cardioprotective Efficacy of *Coriandrum sativum*(L.) Seed Extract in Heart Failure Rats Through Modulation of Endothelin Receptors and Antioxidant Potential.[16]

E. Ginkgo Biloba

Ginkgo biloba, commonly known as ginkgo or gingko, also known as the maidenhair tree, is a species of tree native to China, chemical constituents present in Gingko Biloba are flavones, glycosides, flavonol, ascorbic acid, diterpen lactones, catechin, ssesquiterpes, resins, essential oils, tannins, carotenoids, quercetin, and myricetin due to presence of this they posses antioxidants, antimicrobial, antiinflammatory, memory enhancer, antiaging hepatoprotective,[17,18] Experimental reference Cardioprotective effect of achronic treatment of ginkgo Biloba phytosomes in isoproterenol-induced cardiac necrosis in rats: involvement of antioxidant system.[19]

F. Neem Tree

Neem tree is native of the Mediterranean region.In India,it is grown in AndhraPradesh, TamilNadu, Karnataka, Rajasthan and Madhya Pradesh. It has different chemical constituents present in it that are Reducing sugar, tannins, flavonoids, steroids, terpenoids, glycosides, and alkaloid due to presence of this constituents they posses Cardioprotective, chemopreventive, antiplasmodial, anti-inflammatory ,immunomodulatory, anti-inflammatory, antihyperglycaemic, antiulcer, antimalarial, antifungal, antibacterial, antiviral, antioxidant, antimutagenic and anticarcinogenic. Different phytochemicals such as quercetin and azadirachtin and liminoids such asnimbin, nimbinin, andnimbidin have been purified from the different parts of the plant.[20,21] Experimental reference Cardioprotective effect of gedunin on isoproterenol-induced cardiotoxicity through the attenuation of NF- κB-Mediated inflammatory pathway in rats.[22]

G. Onion

Onion across North America, including New England reduces blood pressure by anti-aggregating the thrombyocytes, stimulates haematopoiesis, reduce asthma attack, anti-cholesterolemic, antidiabetic and effective against cardiovascular disease, presence of different bioactive compounds and secondary metabolites chemical constituents present in garden Onion are allicin, quercetin, fisetin, other sulphurous compounds: diallyl disulphide and diallyl trisulphide. due to presence of this constituents they posses Cardioprotective, antibacterial, antioxidant, hypouricemic.[23,24] Experimental reference Cardioprotective and Antioxidant activity of Onion (Allium cepa) Leaves Extract in Doxorubicin Induced Cardiotoxicity in Rats.[25]

H. Carissa Opaca

Carissa opaca is an evergreen, thorny shrub distributed in Himalayan mountainous regions of Pakistan and India, C***arissa opaca*** is known for its many ethnomedicinal uses. *Carissa opaca* leaves extract are use to make Cardioprotective drugs due to presence of chemical constituents trapezoids, sterols, cardiac glycosides, lignans and many other phenolics.[26,27] Experimental reference Cardioprotective role of leaves extracts of *Carissa opaca* against CCl4 induced toxicity in rats.[28]

I. Turmeric

Turmeric, a plant in the ginger family, is native to Southeast Asia and is grown commercially in that region, primarily in India. Its rhizome (underground stem) is used as a culinary spice and traditional medicine, investigation into the prevention and treatment of abnormal cholesterol levels or heart injury complications, with a simple and common nutritional plant like *Curcuma longa*, is an important step in maintaining optimum health. study showed that the aqueous extract of *Curcuma longa* has effect on lipid metabolism and prevents cardiomyopathy, chemical constituents present in turmeric are Curcumin, b-sesquiphell and rene, curcumenol, sesquiterpenes, and phenolic constituents due to presence of this constituents they posses Cardioprotective, anti- inflammatory, antioxidant. his research was to evaluate the anti-dyslipidaemic and cardioprotective effects of aqueous extract of curcuma longa.[29,30,31] Experimental reference The cardioprotective effects of nano-curcumin against doxorubicin-induced cardiotoxicity.[32]

J. Olive

Olive has a beneficial effect on several aspects of cardiovascular disease via its vasodilatory, anti-platelet aggregation, anti- inflammatory and antioxidant properties, it is a phenolic rich fruit which has various other antioxidant activity, Anti-inflammatory effect, anti-atherogenic effect, anti-hypertensive effect, anti-platelet Chemical constituents present in olive are Flavonoids, iridoids, secoiridoids, flavanones, benzoic acid, derivatives, and triterpene they posses Antidiabetic, anticancer, antimicrobial, and cardioprotective.[33,34] Experimental reference effects of the Olive Tree leaf constituents on myocardial oxidative damage and atherosclerosis.[35]

K. Saffron

Saffron spice, obtained from the flowers of the crocus plant and often called "saffron", has antioxidant properties and therefore helps regulate blood vessels and nerves. Saffron also has anti-inflammatory properties and is beneficial for the cardiovascular system. The substances found in saffron are carotenoid compounds, crocetin, crocin, safranal, glucoside picrocrocin, anthocyanins, delphinidin, dwarf Petunia and due to these components they contain. cardioprotective, hypnotic, anxiolytic and anti-cancer.[36,37] This experiment addressed the cardioprotective effect of *saffron* extract and crocin isoproterenol-induced myocardial infarction in Wistar rats.[38]

L. Cinnamon

Cinnamon is also used as a medicine to reduce pain and inflammation in patients with rheumatoid arthritis. The plant contains cinnamaldehyde, cinnamic acid, cinnamate and many other substances that have a powerful therapeutic effect on cancer and inflammation, cardioprotective and neurological diseases. Polyphenols have good antibacterial, anti-inflammatory, antidiabetic, anti-inflammatory and anti-cancer properties. Eucalyptus leaf extract contains essential saponins, phytosterols, fatty acids, carbohydrates, monoterpenes, sesquiterpenes, geraniol and linolenic alcohol, bornyl acetate, oxycaryophyll, p-coumaric acid and vanillic acid. [39,40,41] Experimental use of *Cinnamomum zeylanicum* Blume (Ceylon cinnamon) bark extract could reduce doxorubicin-induced cardiotoxicity in Wistar rats.[42-56]

Conclusion

Over the past years, people's attention to medicinal plants has been attracted by additional laboratory research on bioactive and cardioprotective components and their ability to treat various diseases, and interest in medicinal plants and preparations is increasing worldwide. This review shows the effects of cardiovascular diseases and motivation for allopathic medicine due to the presence of other diseases, the presence of many cardioprotective phytoconstituents in plants, various biochemical tests and a brief review of some of them in vitro, in vivo. Literature and human studies have proven that herbal plants have no side effects and that there are heart-protective bioactive substances in plant extracts. Nature is always responsible for everyone's health and everyone's needs.

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