



Review Article

A review of ancient medicinal plants utilized in therapy of cardiovascular diseases

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ABSTRACT

There is evidence that many medicinal plants minimize the risk of cardiovascular diseases (CVD). According to the WHO 17.9 million people die every year from cardiovascular disease, reflecting a sharply increased 31 percent of all ecumenical deaths and CVD burden in developed countries. In developing nations, twice as many CVD deaths occur as in developed countries. Overall, CVD is the third highest disease burden in developing countries. In relation to the cardiovascular system, several medicinal plants have been usually examined to have various activities. Hypolipidemic, anti-inflammatory, hypoglycemic and hypotensive antiplatelet behavior. The results showed that green tea was used in broad observational trials for the treatment of cardiovascular diseases to establish that Green tea would minimize cardiovascular morbidity and mortality when consumed in high doses (at least 3 cups per day) and over the long term. Garlic has been widely recognized as an agent for atherosclerosis, thrombosis, diabetes, cardiovascular and other metabolic disease prevention and treatment. It has been claimed that flaxseed may have beneficial effects on cardiovascular health, including reducing blood pressure and lipid levels and preventing arrhythmias. Grape seed extract is similar to that of other antioxidants, as a herbal treatment for liver disorders and gallbladder disease milk thistle has been proposed, cardiovascular diseases remain the primary causes of ecumenical morbidity and mortality. The milk thistle may be useful in reducing overall cardiovascular risk. Cardiovascular disorders include coronary heart disease, cerebrovascular disease, high blood pressure, coronary artery disease, rheumatic heart disease, congenital heart disease, and heart failure.

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1. Introduction

The cardiovascular system facilitates nutrients, oxygen, and directly influences the consistency of body tissues, organs, and phrenic condition to be provided to body systems. The class of diseases affecting the heart or blood vessels (arteries, capillaries and veins) is cardiovascular disorder.¹ Cardiovascular disease (CVD) leads to death, generally speaking. In addition, Expand nations such as India, along with the growing burden of excessive corpulence, type II diabetes and hypertension, are struggling to manage the impact of CVD.² Heart disease occurs 10 to 15 years earlier in India than in the West. Coronary

heart disease causes one-fifth of deaths in India (CHD). It will account for one third of deaths by the year 2020. Common estimates indicate that India will have the most tremendously colossal CVD burden in the world by 2020.³ In the treatment of patients with congestive heart failure, systolic hypertension, angina, atherosclerosis, plant or herbal diseases have been used for cardiovascular diseases. The effectiveness of plant sterols and stanols have been shown to reduce cholesterol and, as such, to truncate contingency for heart disorders.⁴ Cardiovascular diseases (CVDs) were paramount for the largest number of deaths in 2019, according to estimates from the World Health Organization.⁵ A sultry issue in the field of CVD is discovering safe and efficient drugs that accumulate from natural products.⁶ Because of their safety

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profiles, medicinal plants have important advantages for the treatment of cardiovascular disease.⁷ Patients with cardiovascular diseases who have been told of the benefits of medicinal plants may improve their health. For example, medicinal plant-containing diets may be used to effectively regulate hypertension.⁸ The world's first cause of death is cardiovascular disease (CVDs).⁹ An estimated 17.5 million individuals died in 2012 from CVDs, representing 31% of all ecumenical deaths. Coronary artery disease (7.4 million deaths, CVD deaths) and stroke (6.7 million deaths, CVD deaths) are the core diseases of CVDs.^{9, 10} Popularity increases from 5% at 20 years of age to 75% at 75 years of age.¹¹ Cardiovascular disease incidence is affected by a high glycemic index (higher postprandial blood glucose and insulin levels).¹²

Garlic (*Allium sativum* L.) is a Liliaceae family edible and medicinal plant used in archaic Iranian medicine in the treatment of various diseases.^{13,14} The principal utilization of this plant is a truncation of peril factors for cardiovascular diseases (aversion of thromboembolic events and Blood pressure is high).¹⁵⁻²¹ Garlic obtained by freeze-drying has a minimum 0.45% of allicin.²² As of 2015, clinical research to determine the impact of garlic consumption on hypertension has shown that garlic consumption only results in a minute reduction in blood pressure (4 mmHg),²³⁻²⁵ and that there is no significant long-term effect on cardiovascular morbidity and mortality.²⁵ Three ancient Indian medical practices i.e., Tibbi, Unani and Ayurveda, made extensive utilization of garlic as a central part of the rejuvenating efficacy of plants.²⁶ In England, garlic was utilized for toothache, constipation, dropsy and plague.

Green tea (*Camellia sinensis*.) it is from the genus *Camellia* of the Theaceae family of flowering plants. It is native to China, South and Southeast Asia on the mainland.²⁷ Green tea contained a characteristic polyphenolic compound called catechin. The main catechins presented were: epigallocatechin gallate (EGCG), epicatechin Augallate (ECG), epigallocatechin (EGC) and epicatechin (EC), and EGCG was the main form of tea catechin.^{28,29} Green tea has been utilized as a possible treatment for ameliorating phrenic vigilance and availing in weight loss. Proposed cardiovascular effects include minimization of cholesterol levels, amended diabetes control, and aversion of cardiovascular events. Green tea is opulent in flavonoids that are mainly present as catechins.³⁰ Over the years, there have been a variety of studies examining green tea consumption in venerating the risk of CVD.³¹ Two research from Japan involving approximately 50,000 individuals find a decreased mortality rate due to CVD based on intake of different numbers of cups per day. One study found that CVD death among those who consumed about 3 cups and those who consumed about 10 cups decreased by 28 percent. For those who consumed <1 cup and those who consumed <5 cups, the other study

showed a 14 percent decrease in CVD mortality.^{32,33}

Flaxseed (*Linum usitatissimum*) is known in Indian languages as *Alsi*, *Jawas*, *Aksebija*, and is a blue flowering rabi crop and a member of the medicinal plant of the Linaceae family. The annual engenderment of flax was 3.06 million tons and Canada is the world's most astronomically enormous flax engenderer (approximately 38% of the global engenderment).³⁴ In Latin word *linum usitatissimum* betokens "very useful", and it has two rudimentary varieties: brown and yellow or golden (withal kenneed as golden linseeds).³⁵ Alpha-linolenic acid (ALA), lignans, fiber, and four other mundane types of flaxseed available for human consumption are among the richest sources of flaxseed, including whole flaxseed, ground flaxseed, flaxseed oil, and partially degreased flaxseed meal.³⁶ Flaxseed protein, compared with soy protein and casein protein, is efficient in reducing plasma cholesterol and triglycerides (TAG).³⁷ Diets high in soluble fiber may avail abbreviate the jeopardy of heart disease, diabetes, colorectal cancer, extravagant corpulence and inflammation.³⁸

Grape seeds (*Vitis viniferae*) is the one of most sizably voluminous fruit crop in the world and maximum phenolic constituents are present in grape species.³⁹ In order to play a consequential role in the prevention of cancer, cardiovascular disorders, and age-cognate ocular diseases, antioxidant vitamins and trace elements have been identified.⁴⁰ The chemical composition of the grape seed contains: flavonoids (4-5%), including kaempferol-3-O-glucosides, quercetin-3-O-glucosides, quercetin and myricetin.⁴¹ Grape seed extract-victualled individuals with myocardial ischemia are resistant to injury but has cardioprotective action.⁴² Flavonoids in grape juice decremented the occurrence of blood to clot and with customary utilization of grape juice cardiovascular disease can be suppressed and has more bulwark against heart disease than mead.⁴³ It is widely thought that grape seed extract (GSE) has some advantage in the treatment of many cardiovascular disorders, including atherosclerosis, hypertension, hypercholesterolemia, chronic venous insufficiency, and diabetic retinopathy and neuropathy.⁴⁴ Mundane side effects reported in RCTs include itching, dizziness, nausea, diarrhea, headache, sore throat, and cough.^{45,46}

Milk Thistle (*Silybum marianum*) Milk thistle is a member of the family of asters (*Asteraceae* or *Compositae*) containing thistles and daisies.^{47,48} Additionally, silibinin has been demonstrated to be pharmacologically active in the cardiovascular system. This deference has been shown to exert cardioprotective properties, e.g. following cardiac myocyte injury caused by isoproterenol.^{49,50} Silymarin, an amalgamation of flavonolignans consisting of 4 isomers: silibinin, isosilibinin, silichristin, and silidianin, is the active constituent of milk thistle. Most supplements are standardized based on the quality of silibinin (often referred

to as silybin). In turn, both silibinin and isosilibinin are cumulations of 2 diastereomers, respectively, silibinin A and B and isosilibinin A and B.⁵¹ During gravidity and in adults older than 75 years.^{52,53} Milk thistle was used safely, a mild laxative effect and gastrointestinal discomfort are the most frequently recorded adverse events.⁵⁴ Milk thistle tends to be secure for use for up to 41 months.⁵⁵

Table 1: Medicinal herbs used in cardiovascular disease

Activity	Name of the plants
Reduce cardiovascular risk, including abnormal plasma lipids and a high blood pressure.	Garlic
Decrease cholesterol absorption and plasma levels.	Green tea
Oxidant tension reduction, platelet adhesion, blood sugar, and blood pressure reduction.	Flaxseed oil
It improves vascular health, thus substantially reducing the risk of cardiovascular disease and hypertension.	Grape Seeds
Used safety during gravity and in adults older than 75 year.	Milk thistle

2. Conclusion

With the advent of a growing number of heart diseases in all age groups, it is time to explore various herbs and their preparations so that morbidity and mortality from heart diseases can be minimized in our everyday lives. The number one cause of death is cardiovascular diseases globally, and they are projected to remain so. An estimated 17 million people, representing 30 percent of all global deaths, died from cardiovascular disease in 2005. 7.2 million of these fatalities were due to heart attacks and 5.7 million were due to stroke. About 80 percent of these deaths have occurred in countries with low and medium incomes. It is estimated that 23.6 million people will die from cardiovascular disease by 2030 if current trends are allowed to continue (mainly from heart attacks and strokes). Single herb medicines are grouped here based on their properties, with particular emphasis on commonly used garlic, green tea, flaxseed, grape seeds and milk thistle.

3. Source of Funding

None.

4. Conflict of Interest

The authors declare that there is no conflict of interest.

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