



DAUCUS CAROTA LINN (HERB) EFFECTIVE IN CARDIOVASCULAR DISEASE (CVD)

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ABSTRACT:

Cardiovascular disease (CVD) is a significant global health concern, and research into natural remedies has gained attention. This review aims to assess the effectiveness of *Daucus carota* Linn, commonly known as carrot, in managing cardiovascular diseases. The study evaluates existing scientific literature, clinical trials, and preclinical studies to provide an evidence-based analysis of the herb's potential benefits in CVD. Cardiovascular disease (CVD) is the leading cause of death for both men and women in Canada. In comparison to men, women often present with a wider range of symptoms, put off seeking medical care more frequently, and are less likely to be assessed and treated with evidence-based medications, angioplasty, or coronary artery bypass grafts. The majority (39,197) of the 78,964 Canadians who died from CVD in 1998 were women. The greatest cause of mortality for women was acute myocardial infarction, which increases considerably after menopause. Cardiovascular disease was the primary cause of 21% of all hospital admissions for Canadian women over 50 in 1999. The average length of stay was greater for women, while males were more likely to be admitted to the hospital for ischemic heart disease. Mean blood pressure rises with age in both men and women equally. However, high blood pressure is more prevalent among Canadian women over 65. More over one-third of postmenopausal Canadian women have hypertension. In 1999, 21% of all hospital admissions for Canadian women over 50 were due to cardiovascular disease. While men were more likely to be admitted to the hospital for ischemic heart disease, women stayed longer on average. Some medicinal plants well known to treat CVD. Tubers from *Daucus carota* Linn. were extracted with water and measured for their effects on various biochemical parameters at the test doses to determine their inotropic and cardio protective properties. *Daucus carota* Linn. tubers were extracted with water and analysed for its inotropic and cardio protective effects by measuring various biochemical parameters at the test doses (different -different dose).

Keywords: *Daucus carota* Linn, Cardiovascular

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INTRODUCTION:

Daucus carota Linn (Herb): *Daucus carota* Linn, commonly known as carrot, is a root vegetable that belongs to the Apiaceae family. While carrots are not typically considered an herb, they do possess certain medicinal properties and have been studied for their potential health benefits, including their effects on cardiovascular disease (CVD). The roots of the annual or biennial herb *Daucus carota* Linn. (Family: Umbeliferae) are consumed both raw and cooked throughout the world. It is widely grown all over the world, particularly in India. The plant's root is employed as an inotropic and diuretic. There are claims that the seeds' volatile oil has analgesic and anti-inflammatory properties [1]. The roots are considered to have hepatoprotective qualities. After thorough phytochemical investigations, a variety of chemical elements were discovered in *D. carota*, including flavonoids and glycosides that are crucial for inotropic function, such as apigenin-4-o-glucoside and apigenin-7- o-galacto pyranosyl -D mannopyronoside. Researchers tested the inotropic and cardioprotective characteristics of *D. carota* Linn. aqueous extract in rat models as a result of all of these factors as well as the paucity of research on cardiac activity [13]. Carrots are a rich source of various nutrients, such as beta-carotene (a precursor of vitamin A), Fiber, potassium, and antioxidants. These components contribute to the potential cardiovascular benefits of carrots. Here are some ways in which carrots may be beneficial for cardiovascular health: Antioxidant activity: Carrots contain antioxidants like beta-carotene and other carotenoids, as well as vitamin C and various polyphenols. These compounds help neutralize harmful free radicals in the body, reducing oxidative stress and inflammation, which are associated with the development and progression of CVD. Carrots are a good source of dietary fiber, particularly soluble fiber, which has been associated with a lower risk of developing heart disease. High-fiber diets may help lower cholesterol levels and improve blood lipid profiles, which are important factors in cardiovascular health. Heart-protective effects: Carrots have been linked to a reduced risk of heart disease[10]. Their fibre content can help lower cholesterol levels by binding to cholesterol in the digestive system, preventing its absorption. Additionally, the potassium in carrots may help maintain healthy blood pressure levels.

1. Anti-inflammatory properties: Chronic inflammation plays a role in the development of cardiovascular diseases. Carrots contain bioactive compounds that possess anti-inflammatory properties, which may help reduce inflammation and protect against CVD.
2. Vasodilatory effects: Some research suggests that certain compounds found in carrots, such as falcarinol, may promote vasodilation, which is the widening of blood vessels. Vasodilation improves blood flow and can help maintain healthy blood pressure.

While carrots have several potential cardiovascular benefits, it is important to note that they are just one component of a balanced diet and a healthy lifestyle. Consuming a variety of fruits, vegetables, whole grains, lean proteins, and maintaining regular physical activity are essential for cardiovascular health. If you have specific concerns or medical conditions related to cardiovascular disease, it is always advisable to consult with a healthcare professional for personalized advice and treatment.

CARDIOVASCULAR DISEASE (CVD): Cardiovascular diseases, such as hypertension, atherosclerosis, and coronary artery disease, are major contributors to morbidity and mortality worldwide. Pharmacological treatments have limitations and side effects, prompting researchers to explore natural alternatives like *Daucus carota* Linn. The herb has been traditionally used for its medicinal properties, including potential cardiovascular benefits. Cardiovascular disease (CVD) is the leading cause of death in Canada for both men and women [1]. Women are more likely than men to exhibit a wider range of symptoms, experience the onset of CVD about 10 years later, seek medical attention less frequently, and have their CVD examined and treated with specific medications, angioplasty, or coronary artery bypass grafts less frequently than men do. Gender discrepancies have also been connected to CVD risk factors such as smoking, depression, low income, high blood lipids, hypertension, obesity, and inactivity. Women with diabetes mellitus, South Asian women, and Aboriginal women are all at risk. Human development refers to how a person changes over the course of their life in how they interact with their surroundings [2]. A zygote's development begins in utero and lasts the duration of the individual's life. Even though there are many factors that can affect a child's development, cardiovascular disease may be the one that has the worst effects on kids in the US (see Appendix A). Cardiovascular disease is a broad word that refers to a variety of illnesses that collectively affect the heart and all of the blood vessels in the body. Atherosclerosis is one of these disorders, which is brought on by a build-up of plaque in a person's arteries. This build up may reach a certain point over time. When atherosclerosis affects the heart, it manifests as Coronary Artery Disease (CAD), which is the primary cause of death in people with heart disease (WebMD). Heart disease is the leading cause of death in the US. Long-term research has been done on the causes of and treatments to avoid heart disease, and new information is always being found [3]. Since saturated fat and cholesterol are thought to be two important risk factors for coronary artery disease, people are frequently recommended to strictly limit them in their diets. But according to recent study, it may not be wise to severely restrict dietary SFA consumption or replace it with polyunsaturated fatty acids (PUFAs) when other health issues are taken into account [2]. Men and women both see an increase in mean blood pressure with age. However, Canadian women over 65 are more likely to have high blood pressure. Hypertension affects more than one-third of postmenopausal Canadian women. Exercise is also beneficial for everyone in preventing heart disease. When considering human development, including the negative effects of heart disease, humans still have a lot to learn about the human body and the interaction of diet, the environment, and genetics.

EPIDEMIOLOGY:

Cardiovascular diseases (CVD) have been one of the two major causes of death in the US since 1975 (633,842 deaths, or 1 in every 4 deaths), with heart disease being the most common cause of death in 2015, followed by cancer fatalities (595,930) [2]. According to estimates from the World Health Organisation (WHO), 17.7 million deaths worldwide in 2015 were attributed to CVD. With projected indirect costs of \$368 billion by 2035, CVD is predicted to be the most expensive disease, even more so than diabetes and Alzheimer's. This adds to the burden of the condition. The annual estimated indirect cost of CVD is \$237 billion [4]. The risk of heart disease remains significant, with a projected 50% chance by age 45 in the general population, despite the fact that the age-adjusted rate and acute mortality from MI have been dropping over time, indicating the advances in diagnosis and treatment over the last couple of decades. [5]

The incidence is higher in men at younger ages, and it increases dramatically with age and gender. [2] In the post-menopausal state, the incidence disparity gradually gets smaller.

PATHOPHYSIOLOGY:

Blood vessel stenosis and the potential for reduced or non-existent blood flow to result in disease lead to atherosclerosis, a disease-causing condition that occurs in the arteries and aorta. [6]. Numerous factors, such as dyslipidaemia, immune system reactions, inflammation, and endothelial dysfunction, have an impact on it. According to some theories, these components serve as the catalyst for the progressive process that may begin as early as childhood and leads to the formation of fatty streaks, which serve as a tell-tale sign of the formation of atherosclerotic plaque [7-27]. This process involves intimal thickening, followed by the accumulation of extracellular matrix and lipid-rich macrophages (foam cells), the aggregation and proliferation of smooth muscle cells, and the formation of the atheroma plaque. [8] As these lesions progress, the deep layers may undergo apoptosis, which may lead to an increase in macrophage recruitment and the formation of calcified atherosclerotic plaques. [9]. Additional mechanisms, such as arterial remodelling and interleague haemorrhage, which are outside the scope of this article, speed up and slow down atherosclerotic cardiovascular disease.

TREATMENT:

Patients with known CVD should, nevertheless, receive substantial education regarding the necessity of secondary prevention through risk factor and lifestyle adjustment. Depending on the clinical condition, the care of CVD can be fairly broad (coronary stenting for CHD, catheter-directed thrombolysis for acute ischemic stroke, and angioplasty for peripheral vascular disease) [10].

DIFFERENT DIAGNOSIS:

- Acute pericarditis
- Angina pectoris
- Coronary artery vasospasm
- Dilated cardiomyopathy
- Giant cell arteritis
- Hypertension
- Hypertensive heart disease
- Kawasaki disease
- Myocarditis

COMPLICATIONS:

Death is the most dreaded CVD complication, and as previously said, despite numerous discoveries in recent decades, CVD continues to rank among the top causes of death worldwide due to its alarmingly high incidence. [2] Health care officials are focusing on additional issues since it is anticipated that they will only get worse in the next decades. These issues include the need for longer hospital stays, physical disability, and rising expenses of treatment. For

people with heart failure with reduced ejection fraction (HFReEF) of less than 35%, as the risk of life-threatening arrhythmias is exceedingly high in these patients, current guidelines recommend the implantation of an implantable-cardioverter defibrillator (ICD) for those with symptoms equivalent to a New York Heart Association (NYHA) Class II-IV despite maximal tolerated medical therapy [11].

CONSULTATIONS:

A multidisciplinary approach involving primary care doctors, nurses, nutritionists, cardiologists, neurologists, and other experts is probably going to produce better results. This has been shown to be beneficial for people who have heart failure, coronary disease, [52] as well as other types of CVD. Trials now being planned to ascertain the impact on these conditions are encouraging [12].

ORIGIN AND OTHER ISSUES:

The four main conditions that make up cardiovascular disease include, among other things: origin CAD, CVD, PVD, and aortic atherosclerosis. The main cause of death worldwide is CVD. The employment of methods to inhibit atherosclerosis from progressing is a fundamental CVD preventive trait. CVD must be prevented by making changes to risk factors and lifestyle [10, 13].

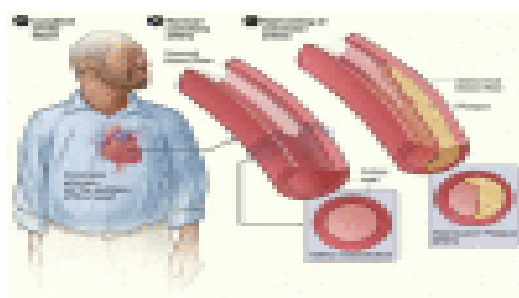


Figure no. 1: Atherosclerosis as a result of coronary heart disease.

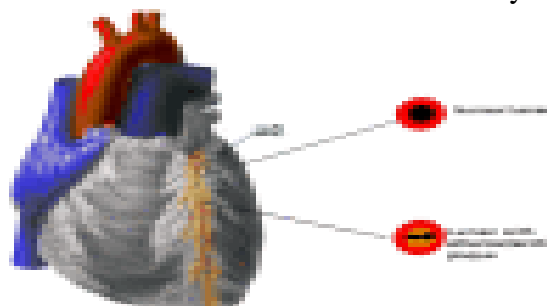


Figure no. 2: Coronary artery disease

RESULTS: The search yielded several studies related to the cardiovascular effects of *Daucus carota* Linn. Preclinical studies in animal models have reported beneficial outcomes, including a reduction in blood pressure, lipid-lowering effects, and improvement in endothelial function. These findings suggest that certain bioactive compounds present in the herb, such as polyphenols and flavonoids, may contribute to its cardioprotective effects. Furthermore, limited human clinical trials have explored the impact of *Daucus carota* Linn on cardiovascular

parameters. While some studies have shown positive trends in blood pressure reduction and cholesterol levels, the evidence remains inconclusive due to small sample sizes and methodological limitations.

DISCUSSION: The findings from preclinical studies are promising, suggesting that *Daucus carota* Linn may have beneficial effects on various cardiovascular risk factors. However, the lack of well-designed, large-scale human clinical trials hinders the establishment of definitive conclusions regarding its efficacy in managing CVD.

CONCLUSION: The main therapeutic drugs used to treat congestive heart failure are catecholamine and cardiac glycosides. The extract has a cardioprotective effect on isoproterenol-induced myocardial violations, as shown by the current investigation. *Daucus carota* Linn (Herb) is very useful in CVD. Various chemical present in this these chemical constituents effective heart disease.

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