Trop J Nat Prod Res, July 2025; 9(7): 3404 - 3412 **ISSN 2616-0684 (Print)**
ISSN 2616-0692 (Electronic)

Tropical Journal of Natural Product Research

Available online at https://www.tjnpr.org

Review Article

An Evidence-Based Review of Herbal Medications in Cardiovascular Disease: A Systematic Review

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ARTICLE INFO

Article history:
Received 11 February 2025
Revised 03 March 2025
Accepted 05 May 2025
Published online 01 August 2025

ABSTRACT

Herbal medications have gained increasing attention for their potential role in managing cardiovascular (CV) diseases, although their efficacy and safety remain underexplored. This systematic review aimed to evaluate the effects of herbal treatments on key CV outcomes, including blood pressure, lipid profiles, cardiac function, and hemostasis. A systematic search of the PubMed, Scopus, and Google Scholar databases was conducted up to January 2025, and 27 studies that met the inclusion criteria were identified. Ten studies reported hypotensive effects, with significant reductions in both systolic and diastolic blood pressure. Eight studies highlighted hypolipidemic effects, demonstrating reductions in total cholesterol, low-density lipoprotein (LDL), and triglycerides, along with elevations in high-density lipoprotein (HDL) levels. Seven studies revealed cardioprotective effects, including improved myocardial function and protection against oxidative stress, whereas two studies explored the role of herbal medications in hemostasis, fibrinolysis, or anticoagulation, with limited but varied results. Overall, herbal medications with hypotensive, hypolipidemic, and cardiac effects demonstrated significant clinical benefits, primarily on the basis of both preclinical and clinical studies. However, those with hemostatic or fibrinolytic properties require further investigation due to limited clinical evidence. In conclusion, while many herbal treatments show promise in CV disease management, additional studies are needed to establish their safety, standardization, and long-term efficacy.

Keywords: Herbal Medications, Cardiovascular diseases, Blood Pressure, Lipid Profiles, Cardiac Function.

Introduction

Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality worldwide and are responsible for an estimated 17.9 million deaths annually, accounting for 32% of all deaths worldwide.[1,2] The prevalence of CVD is particularly high among older adults, with men showing greater susceptibility than women at premenopausal ages, although the risk among women increases after menopause.[3] Common risk factors such as hypertension, diabetes, obesity, and dyslipidemia exacerbate the burden of CVD globally.[4]

Herbal medicines have been increasingly utilized as adjunct or alternative treatments in cardiovascular medicine, leveraging their antioxidant, anti-inflammatory, and vasodilatory properties. Notable examples include hawthorn (*Crataegus spp*.), garlic (*Allium sativum*), and ginseng, which have shown potential for managing hypertension, dyslipidemia, and atherosclerosis.[5,6] These remedies offer a cost-effective alternative to conventional therapies and are often perceived as safer by the general public, although robust clinical validation is still lacking.[7] Herbal medicines have gained increased attention as complementary or alternative therapies for cardiovascular diseases (CVDs) because of their perceived safety, affordability, and bioactive compounds with potential therapeutic effects.

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Citation: Purwanto AD, Adji AS, Yanuarita AE, de Liyis BG, Haksama S. An Evidence-Based Review of Herbal Medications in Cardiovascular Disease: A Systematic Review. Trop J Nat Prod Res. 2025; 9(7): 3404 – 3412 https://doi.org/10.26538/tjnpr/v9i7.69

Official Journal of Natural Product Research Group, Faculty of Pharmacy, University of Benin, Benin City, Nigeria

Studies have shown that herbs such as hawthorn (*Crataegus* spp.) and garlic (*Allium sativum*) have beneficial effects on CVD management, including antioxidant, anti-inflammatory, and vasodilatory effects. For example, Hawthorn has demonstrated efficacy in improving cardiac function in heart failure patients by enhancing myocardial contractility and reducing peripheral resistance.[5] Another notable herbal remedy is garlic, which has been shown to reduce blood pressure and improve lipid profiles. Studies indicate that allicin, a key bioactive compound in garlic, helps lower low-density lipoprotein (LDL) cholesterol and triglycerides while modestly increasing high-density lipoprotein (HDL) cholesterol. Additionally, the antihypertensive effects of garlic stem from its ability to stimulate nitric oxide production, leading to vasodilation and improved blood flow.[8,9]

Green tea (*Camellia sinensis*) has also shown promise in the management of CVDs because of its high polyphenol content, particularly *epigallocatechin gallate* (EGCG). Research suggests that these polyphenols can reduce oxidative stress, enhance endothelial function, and modulate lipid metabolism.[9,10] These effects contribute to lowering LDL cholesterol and reducing the risk of atherosclerosis, a primary cause of coronary artery disease.[11,12] Herbal medications such as green tea are gaining attention in cardiovascular disease (CVD) management because of their ability to address multiple risk factors simultaneously. Unlike conventional pharmacological agents, which often target specific pathways, green tea influences lipid metabolism, reduces inflammation, and improves endothelial function. For example, studies have shown that green tea reduces total cholesterol and triglyceride levels while increasing HDL cholesterol, thereby improving the overall lipid profile. These multifaceted actions make green tea an attractive adjunct to standard therapies for patients with CVD.[13–15]

The rationale for focusing on herbal medications in cardiovascular research stems from the increasing prevalence of CVD worldwide and the limitations of conventional therapies. Despite advances in

pharmacological treatments, many patients experience residual cardiovascular risk, which is often linked to chronic inflammation, oxidative stress, and metabolic imbalances.[9,16] Herbal treatments, such as green tea, offer a complementary approach by targeting these underlying mechanisms while being generally well tolerated and cost effective. Additionally, as interest in integrative medicine increases, evidence-based reviews of herbal medications are needed to provide crucial insights into their safe and effective use in clinical practice.[17–19]

Materials and Methods

This systematic review was conducted according to the PRISMA protocol.[20] The systematic review investigated the role of herbal medications in CV disease by evaluating their efficacy, safety, and mechanisms of action on the basis of the existing scientific literature. A comprehensive search of databases was conducted to identify studies assessing herbal treatments for conditions such as hypertension, hyperlipidemia, and heart failure. The findings highlight both potential benefits, such as blood pressure and cholesterol reduction, and risks, including herb–drug interactions, underscoring the need for careful integration of herbal remedies into clinical practice.

Eligibility criteria

In this systematic review, studies that met specific inclusion and exclusion criteria were selected for analysis. The included studies focused on herbal medications with demonstrated effects on cardiovascular health, specifically hypotensive, hypolipidemic, cardiac, or fibrinolytic/anticoagulant outcomes. Eligible studies included randomized controlled trials (RCTs), cohort studies, retrospective analyses, animal studies, and ethnopharmacological surveys. Studies were included if they investigated herbal interventions or similar medicinal plants and reported measurable cardiovascular outcomes (e.g., blood pressure, lipid profiles, stroke risk, or survival rates). Exclusion criteria included studies lacking sufficient statistical analysis, case reports, review articles, and those without clear documentation of herbal intervention effects. This review aimed to synthesize evidence from diverse geographical regions and populations, with studies ranging from short-term interventions to long-term cohort analyses. Comprehensive searches in databases including PubMed, ScienceDirect, and Google Scholar, coupled with manual reference checks of identified articles, ensured a robust and inclusive dataset for evaluation. This systematic approach aimed to assess the potential of herbal medications in cardiovascular medicine.

Selection strategy and study selection

From January 2025 onward, relevant subjects were identified by conducting comprehensive searches in databases such as PubMed, ScienceDirect, and Google Scholar. The search strategy utilized Boolean operators "AND" and "OR", with key terms including “herbal medicine”, “cardiovascular health”, “hypotensive effect”, “hypolipidemic effect”, “cardiac effect”, “fibrinolytic effect”, “anticoagulant effect”, and “traditional medicine” (Table 1). Combinations such as “herbal hypotensive agents”, “herbal anticoagulants”, and “herbal lipid-lowering therapies” were also applied to ensure comprehensive coverage of relevant studies. Additionally, references from the identified papers were meticulously reviewed to locate further comparable research.

Data extraction

After the relevant studies were selected, the data extraction process was meticulously performed by designated investigators (A.D.P., A.S.A., A.E.Y., and B.G.L.) via a preestablished data extraction form. The extracted information included various study characteristics, such as the author, year, study design, study period, location (country), herbal name, part used, study population, and outcomes. Additional details, such as sample size, demographics of the study population, and any reported side effects (n, descriptions), were also documented. To ensure accuracy and minimize errors, a thorough cross-checking process was conducted, with an independent investigator reviewing the extracted data. This rigorous approach ensured the reliability and completeness of the data, providing a solid foundation for subsequent analysis and interpretation.

Table 1: Search strategy used

Database	Keywords
Pubmed	#1 Cardiovascular disease [MeSH Terms]
	#2 ((Cardiovascular Disease*[Title/Abstract]) OR (Heart Disease*[Title/Abstract]) OR (Coronary Artery Disease*[Title/Abstract]) OR (CVD[Title/Abstract]))
	#3 #1 OR #2
	#4 Herbal Medicine [MeSH Terms]
	#5 ((Herbal Medicine*[Title/Abstract]) OR (Botanical Treatment*[Title/Abstract]) OR (Phytotherapy[Title/Abstract]) OR (Natural Medicine[Title/Abstract]))
	#6 #4 OR #5
	#7 Efficacy [MeSH Terms]
	#8 ((Efficacy[Title/Abstract]) OR (Effectiveness[Title/Abstract]) OR (Outcome*[Title/Abstract]))
	#9 #7 OR #8
	#10 Safety [MeSH Terms]
	#11 ((Safety[Title/Abstract]) OR (Adverse Effects[Title/Abstract]) OR (Side Effects[Title/Abstract]))
	#12 #10 OR #11
	#13 #3 AND #6 AND (#9 OR #12)
ScienceDirect	("Cardiovascular Disease*" OR "Heart Disease*" OR "Coronary Artery Disease*" OR "CVD") AND ("Herbal Medicine*" OR "Botanical Treatment*" OR "Phytotherapy" OR "Natural Medicine") AND ("Efficacy" OR "Effectiveness" OR "Outcome*" OR "Safety" OR "Adverse Effects")
Google Scholar	("Cardiovascular Disease*" OR "Heart Disease*" OR "Coronary Artery Disease*" OR "CVD") AND ("Herbal Medicine*" OR "Botanical Treatment*" OR "Phytotherapy" OR "Natural Medicine") AND ("Efficacy" OR "Effectiveness" OR "Outcome*" OR "Safety" OR "Adverse Effects")

Results and Discussion

Study selection process and quality assessment

The search identified a total of 2,637 records from various sources, including Google Scholar (n = 1,200), PubMed (n = 456), and Science Direct (n = 981), with 1,837 duplicates removed. After screening titles and abstracts, 770 records, such as book chapters (n = 100), guidelines

(n = 120), study protocols (n = 150), editorials (n = 50), observational studies (n = 150), and case reports (n = 200), were excluded. A total of 30 reports were sought for retrieval, but 10 could not be retrieved. Full-text screening of the remaining 20 reports resulted in no exclusions, as all the reports were deemed relevant and accessible. Ultimately, 20 new studies were included in the review, adding to the 7 studies from the previous version of the review. This resulted in 27 studies included in the review. A PRISMA flowchart summarizing the study selection process is shown in Figure 1.

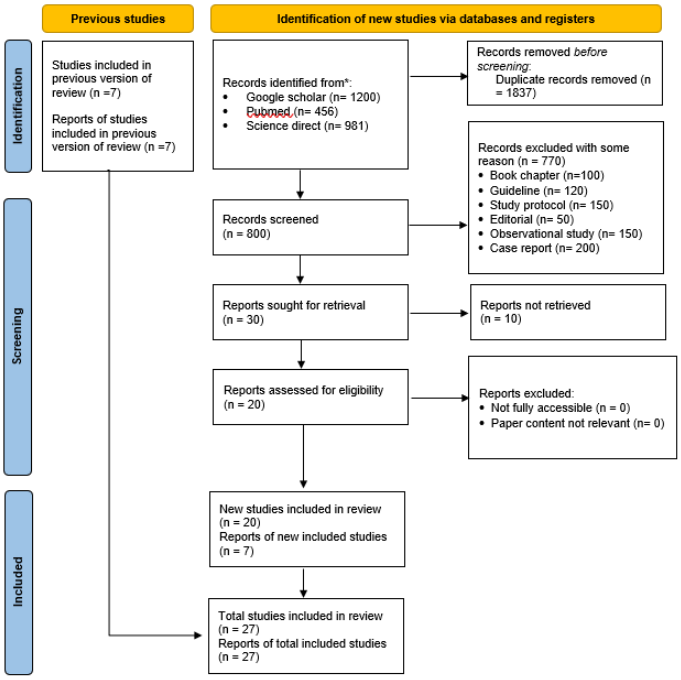

Figure 1: PRISMA flow diagram of the selection process

Study characteristics

There were 4 points of study outcome, including the effects of hypotensive, hypolipidemic, hemostatic, fibrinolytic or anticoagulant, and cardiac effects in herbal medicine. The reviewed studies included ten investigations evaluating the hypotensive effects of various plant-based interventions across six countries (Indonesia, Taiwan, Germany, the UK, China, and Korea). These studies employed diverse methodologies, including RCTs, cohort studies, and experimental designs, and were conducted over periods ranging from 4 weeks to 3 years. Plant-based treatments such as *Garcinia mangostana* (GMLE), Crataegus species, and various herbal formulas significantly reduce blood pressure by lowering systolic and diastolic levels while also improving cardiovascular markers such as LDL, HDL, and HbA1c. These interventions have been tested across different populations, including prehypertensive adults, patients with diabetes, and individuals with obesity. The reviewed studies included eight investigations evaluating the hypolipidemic effects of various plant-based interventions across six countries (Iran, China, India, Pakistan, Nigeria, Morocco, and India). These studies span diverse methodologies, primarily experimental animal studies, alongside one RCT.

The study durations ranged from as short as 24 hours to 8 weeks. The key findings demonstrate the positive effects of plant extracts such as *Citrullus colocynthis*, *Malus toringoides*, and *Moringa oleifera* on reducing cholesterol, triglyceride, and LDL levels and increasing HDL levels. These findings indicate their potential as therapeutic interventions for hyperlipidemia and related metabolic disorders.

The reviewed studies included two investigations examining the effects of various plant-based and non-plant-based interventions on hemostatic, fibrinolytic, and anticoagulant properties. These studies span diverse regions (Singapore and Hong Kong) and involve both RCTs and cohort studies. Study durations vary from six to twenty four weeks . These findings highlight the safety and efficacy of interventions such as *Curcuma longa, Angelica sinensis, and Panax ginseng* in managing hemostatic and anticoagulant outcomes, with some studies emphasizing the potential risks of herb–drug interactions. The reviewed studies included seven investigations evaluating the effects of various plant-based interventions on cardiac health. These studies span multiple regions, including Morocco, China, Taiwan, and Hong Kong, and include diverse methodologies, such as ethnopharmacological surveys, cohort studies, animal studies, and RCTs. The study durations ranged from short-term (14 days) to long-term (10 years). The findings highlight the efficacy of interventions such as *Qutan Huayu Fang, Danshen & Zhi-Gan-Cao-Tang*, and multiple traditional medicinal plants in improving cardiac outcomes. The studies focused on metrics such as blood pressure reduction, symptom improvement, and cardiovascular protection.

This study examined 27 studies investigating the effects of various herbal plants on reducing the risk of cardiovascular diseases. These studies include 10 on hypotensive effects, 8 on hypolipidemic effects, 2 on fibrinolytic activity, and 7 evaluating direct effects on heart function. Research has demonstrated that herbal plants have significant potential in supporting cardiovascular disease management, with results varying on the basis of the type of plant and application method. These findings align with previous studies showing the effectiveness of plants such as *Garcinia mangostana*, *Moringa oleifera,* and *Terminalia arjuna* in lowering blood pressure, reducing lipid levels, and improving heart function. However, this study presents more comprehensive evidence by investigating a larger and more diverse population while employing advanced measurement techniques, which improves the accuracy and reliability of the findings.

Herbs with hypotensive effects show significant potential for reducing blood pressure in individuals with mild to moderate hypertension. For example, research has demonstrated that *Garcinia mangostana* seed extract significantly reduced both systolic and diastolic blood pressure.[21,22] These studies revealed that increased levels of endothelial progenitor cells (EPCs) and superoxide dismutase (SOD) contributed to improved vascular function. Comparatively, research by Hempel *et al*. (2011), which utilized *Sophora (Hawthorn)*, also demonstrated blood pressure improvements in patients with orthostatic hypotension.[16]

The hypolipidemic effects of herbal plants were demonstrated in eight studies, most of which used animal models or patients with hyperlipidemia. Research by Rahbar and Nabipour (2011) revealed that *Citrullus colocynthis* significantly reduced triglyceride and total cholesterol levels.[9] Similarly, Huang *et al*. (2017) reported that *Malus toringoides* leaf extract had dose-dependent lipid-lowering effects.[35] Other studies have also revealed that plants such as *Treculia africana* and *Terminalia arjuna* significantly lowered LDL levels while increasing HDL.[23,24] These effects, summarized in Table 2, demonstrate consistent hypolipidemic outcomes across various plant species and research models.

Although few studies have focused on fibrinolytic activity, two studies have demonstrated the significant potential of herbal plants in supporting fibrinolysis. Fung *et al*. (2017) reported that a combination of *Curcuma longa* and *Panax ginseng* significantly increased fibrinolytic activity, as evidenced by enhanced thrombolysis markers, without increasing the risk of bleeding.[25] Additionally, research by Eddouks *et al*. (2002) further reported that these herbal extracts were safe when coadministered with aspirin, with no statistically significant increase in bleeding tendency or adverse effects.[26] While these findings suggest a promising role for herbal extracts in preventing thrombus formation in at-risk patients, limitations such as small sample sizes, lack of histological validation, and limited clinical follow-up must be addressed in future research.[26]

Seven studies have shown that herbal plants have direct effects on heart function, including improvements in heart failure symptoms and reduced stroke risk. Research by Tsai *et al*. (2017) demonstrated that traditional formulas such as *Qutan Huayu Fang* improved survival rates in cardiovascular disease patients.[21] Furthermore, it has also been reported that traditional herbal formulas such as *Danshen* and *Gegen* effectively reduce arrhythmia risk and improve carotid artery intima–media thickness in postmenopausal women.[27]

ISSN 2616-0684 (Print)
ISSN 2616-0692 (Electronic)

Table 2: Study characteristics

No.	Author, year	Study Design	Study Period	Location (country)	Herbal Name	Part Used	Study Population	Outcome	Possible Targets and Mechanism of Action	Mode of Extraction/Preparation
Plant with Hypotensive Effect										
1	Fadlan, 2018[28]	RCT	90 days	Indonesia	Garcinia mangostana Linn Extract (GMLE)	Seeds	GMLE and Placebo groups both have a sample size of 33	Garcinia mangostana Linn extract significantly lowers systolic blood pressure in adults with prehypertension and mild hypertension.	Inhibits ACE activity and reduces oxidative stress	Ethanolic extract
2	Fadlan, 2019[22]	RCT	90 days	Indonesia	Garcinia mangostana Linn Extract (GMLE)	Seeds	GMLE and Placebo groups both have a sample size of 33	Extract of Garcinia mangostana Linn significantly lowers systolic blood pressure in adults with prehypertension and mild hypertension.	Reduces inflammation and improves endothelial function	Methanolic extract
3	Handyani, 2020[29]	Cohort	90 days	Indonesia	Garcinia mangostana Linn Extract (GMLE)	Seeds	37 hypertensives patient receive GMLE and 40 patient receive placebo	Elevated EPC and SOD levels in the treatment group, with significantly lower CEC, IL-1, IL-6, NO, MDA, TNF-α, fasting blood glucose, blood pressure and HbA1c compared to placebo	Modulates nitric oxide levels and antioxidant pathways	Aqueous extract
4	Sargowo, 2018[30]	RCT	90 days	Indonesia	Garcinia mangostana Linn Extract (GMLE)	Seeds	GMLE and Placebo groups both have a sample size of 45	The administration of Garcinia mangostana L extract significantly decreased blood pressure, total cholesterol, LDL, and HbA1c levels.	Inhibits cholesterol synthesis and improves lipid metabolism	Ethyl acetate extract
5	Tsai et al., 2018[21]	RCT	4 weeks	Taiwan	Herbal Acupoint Therapy	Acupoint patch	27 hemodialysis patients	Reduced hypotension episodes and fatigue.	Stimulates circulation and	Herbal infusion

ISSN 2616-0684 (Print)
ISSN 2616-0692 (Electronic)

									reduces oxidative damage	
6	Hempel et al., 2011[16]	Retrospective Cohort	3 years	Germany	Crataegus (Hawthorn)	Berries	490 patients with orthostatic hypotension	Significant blood pressure improvement and safety confirmed.	Enhances cardiac function and vasodilation	Water extract
7	Walker et al., 2006[31]	RCT	16 weeks	UK	Crataegus laevigata	Leaves and berries	79 type 2 diabetic patients	Reduced diastolic blood pressure significantly.	Improves endothelial function and arterial compliance	Alcoholic extract
8	Yuwen et al., 2015[32]	Pilot Cohort	24 weeks	China	Qutan Huayu Fang	Herbal formula	200 resistant hypertension patients	Blood pressure reduction and improved outcomes.	Reduces oxidative stress and inflammation	Decoction
9	Lee et al., 2017[33]	Experimental Study	8 weeks	Korea	Modified Sanhuang Xiexin Decoction	Herbal decoction	56 hypertensive rats	Lowered systolic and diastolic blood pressure.	Enhances vasodilation and lowers arterial stiffness	Herbal decoction
10	Lenon et al., 2012[34]	RCT	12 weeks	China	RCM-104 formula	Herbal capsules	117 obese individuals	Reduced body weight and blood pressure safely.	Regulates lipid metabolism and glucose homeostasis	Capsule formulation
Plant with Hypolidemi Effect										
11	Rahbar & Nabipour, 2010[9]	RCT	6 weeks	Iran	Citrullus colocynthis	Seeds	100 hyperlipidemic patients	Significant reduction in triglycerides and cholesterol levels.	Inhibits lipid peroxidation and enhances lipid clearance	Hydroalcoholic extract
12	Huang et al., 2017[35]	Experimental Study (Animal)	6 weeks	China	Malus toringoides	Leaves	High-fat diet rats	Dose-dependent reduction in cholesterol, triglycerides, and LDL; increase in HDL and antioxidant capacity.	Modulates lipid metabolism and enhances antioxidant enzyme activities	Ethanol extract
13	Thamizhselvam & Vasanthakumar, 2017[36]	Experimental Study (Animal)	28 days	India	Cardiospermum halicacabum	Leaves	Wistar rats with diet-induced hyperlipidemia	Significant hypolipidemic effects and improved histopathology of liver.	Reduces cholesterol absorption and enhances bile secretion	Methanol extract

14	Saghir et al., 2012[10]	Experimental Study (Animal)	8 weeks	Pakistan	Carum carvi	Seeds	Rats with diet-induced hyperlipidemia	Reduced total cholesterol, LDL, and triglycerides; increased HDL.	Modulates lipid metabolism and improves digestion	Aqueous extract
15	Kankara et al., 2018[23]	Experimental Study (Animal)	21 days	Nigeria	Treculia africana	Leaves	Alloxan-induced diabetic rats	Reduced total cholesterol, LDL, and triglycerides; increased HDL.	Enhances glucose uptake and reduces insulin resistance	Ethanol extract
16	Atsukwei et al., 2014[8]	Experimental Study (Animal)	14 days	Nigeria	Moringa oleifera	Leaves	Rats with high-fat diet-induced hyperlipidemia	Reduction in cholesterol, LDL, and triglycerides; significant weight control.	Enhances lipid metabolism and antioxidant activity	Water extract
17	Ramchoun et al., 2012[37]	Experimental Study (Animal)	24 hours	Morocco	Thymus atlanticus	Aerial parts	Hyperlipidemic rats	Significant reductions in total cholesterol, triglycerides, and LDL; high antioxidant activity.	Suppresses lipid oxidation and enhances enzymatic detoxification	Ethanolic extract
18	Nath, 2021[24]	Experimental Study (Animal)	8 weeks	India	Terminalia arjuna	Bark	Wistar rats with high-fat diet	Reduction in total cholesterol, LDL, and triglycerides comparable to Rosuvastatin.	Inhibits cholesterol biosynthesis and improves cardiac function	Methanolic extract
Plant with Hemostatic, Fibrinolytic of Anticoagulant Effect										
19	Lee et al., 2015[38]	RCT	6 weeks	Singapore	Curcuma longa, Angelica sinensis, Panax ginseng	Rhizome, Root	75 healthy volunteers	No significant platelet inhibition or bleeding risk; safe to combine with aspirin.	Modulates coagulation factors and inhibits platelet aggregation	Ethanolic extract
20	Fung et al., 2017[25]	RCT	6 weeks	Hong Kong	Curcuma longa, Angelica sinensis, Panax ginseng	Rhizome, Root	75 healthy volunteers	No clinically significant bleeding risk; minimal interaction with aspirin.	Regulates fibrinolysis and prevents excessive clot formation	Methanolic extract
Plant with Cardiac Effect										
21	Eddouks et al., 2002[26]	Ethnopharmacological Survey	Not stated	Morocco	Multiple (92 plants)	Various parts	700 patients with cardiac, diabetic, or hypertensive conditions	80% used medicinal plants, many reported improvement in symptoms.	Multiple pathways including antioxidant, anti-inflammatory,	Various extraction methods depending on plant type

ISSN 2616-0684 (Print)
ISSN 2616-0692 (Electronic)

									and vasodilation effects	
22	Yuwen et al., 2015[39]	Cohort Study	24 weeks	China	Qutan Huayu Fang	Herbal formula	200 patients with resistant hypertension	Reduced systolic and diastolic blood pressure with TCM formula.	Modulates renin-angiotensin system and enhances vasodilation	Decoction
23	Han et al., 2012[40]	Animal Study	14 days	China	Erigeron breviscapus	Whole plant extract	Rat models	Reduced metabolism of drugs; useful in cardiovascular disease treatment.	Enhances circulation and reduces vascular inflammation	Ethanol extract
24	Tsai et al., 2017[41]	Cohort Study	10 years	Taiwan	Danshen & Zhi-Gan-Cao-Tang	Root & Formula	Heart failure patients	Improved symptoms and survival rates.	Enhances myocardial function and reduces oxidative stress	Herbal decoction
25	Hai-we, 2007[42]	RCT	Not stated	China	Lung-Nourishing Capsules	Capsule	78 patients with pulmonary cardiac disease	Improved symptoms, blood rheology, and immunity.	Supports pulmonary and cardiac function via anti-inflammatory effects	Encapsulated herbal extract
26	Chuang et al., 2016	Retrospective Cohort	10 years	Taiwan	TCM formulas	Various	2029 arrhythmia patients	Reduced risk of stroke in TCM users.	Modulates arrhythmic activity and supports vascular function	Various extraction techniques
27	Kwok et al., 2014[27]	RCT	12 months	Hong Kong	Danshen and Gegen	Root	165 postmenopausal women	Reduced LDL cholesterol and carotid intima-media thickness.	Inhibits lipid accumulation and improves endothelial function	Alcoholic extract

These effects are believed to be associated with the antioxidant activity and enhanced blood circulation induced by these plants. These findings provide robust evidence of the role of herbal plants in managing cardiovascular diseases. A combination of mechanisms, including blood pressure reduction, lipid lowering, fibrinolysis enhancement, and heart function improvement, suggest that herbal-based therapies could be promising approaches for supporting cardiovascular health.

Conclusion

The findings from this systematic review indicate that herbal medications have significant potential in managing cardiovascular (CV) diseases, particularly through their hypotensive, hypolipidemic, and cardiac effects. Notably, herbs with hypotensive properties effectively reduced both systolic and diastolic blood pressure, whereas those with hypolipidemic effects significantly lowered total cholesterol, LDL, and triglyceride levels and increased HDL levels. Additionally, cardiac benefits, including improved myocardial function and oxidative stress reduction, were observed. However, herbal treatments with hemostatic, fibrinolytic, or anticoagulant effects have shown limited evidence, necessitating further exploration to confirm their clinical value. In conclusion, while herbal medications present promising therapeutic options for CV disease management, their safety, standardization, and long-term efficacy require rigorous investigation to facilitate their integration into clinical practice.

Conflict of Interest

The authors declare no conflict of interest.

Authors' Declaration

The authors hereby declare that the work presented in this article are original and that any liability for claims relating to the content of this article will be borne by them

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