

The Effects of Black Barberry (*Berberis integerrima*) on Cardiovascular Disease Risk Factors: A Review

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Introduction

Cardiovascular diseases (CVDs) are the leading cause of global mortality, driven by classical risk factors such as dyslipidemia and hypertension, as well as newer factors like inflammation and oxidative stress. Berries, rich in polyphenols like anthocyanins, have demonstrated beneficial effects on CVD risk factors. Purple-black barberry (*Berberis integerrima*) is a berry of particular interest due to its high content of anthocyanins and the alkaloid berberine, both linked to cardiometabolic benefits in experimental studies.

Methods

A comprehensive literature search was conducted in PubMed and Google Scholar databases using key terms including “black barberry”, “*Berberis integerrima*” and “cardiovascular disease” to identify relevant studies.

Results

Preclinical evidence from animal models indicates that barberry extract exerts significant antihypertensive, lipid-lowering, and antioxidant effects. It has been shown to reduce fasting blood sugar, triglycerides, lipid oxidation, and lipoprotein(a) in diabetic rats. In limited human clinical trials, barberry consumption has yielded promising, though partially inconsistent, results. Key findings include a reduction in C-reactive protein (CRP), a biomarker of inflammation, in patients with metabolic syndrome. Notably, a daily consumption of 1· grams of dried seedless black barberry was found to significantly decrease systolic and mean arterial blood pressure in hypertensive patients already on medication.

Discussion

The cardioprotective properties of black barberry are attributed to its rich phytochemical profile. The anthocyanins and berberine it contains are proposed to mediate these effects through multiple mechanisms. These include suppressing lipid peroxidation, improving the plasma lipid profile by modulating the expression of lipogenesis-related genes, and exerting anti-inflammatory actions. The observed blood pressure-lowering effect is consistent with known pharmacological actions of berberine, such as improving cardiac contractility and reducing peripheral vascular resistance.

Conclusion

Black barberry presents a potent natural adjuvant for managing CVD risk factors. Its demonstrated effects on reducing inflammation, improving dyslipidemia, and particularly its ability to lower blood pressure in medicated patients, highlight its therapeutic potential. The simple recommendation of consuming a modest daily amount (e.g., 1·g) of dried black barberry could be a valuable strategy to improve cardiovascular health, especially in hypertensive individuals. Further clinical studies are warranted to fully elucidate the underlying mechanisms and standardize effective dosing.

Keywords

“Black Barberry”, “*Berberis integerrima*”, “Cardiovascular Diseases”

References

۱. Emamat, H., Zahedmehr, A., Asadian, S. et al. The effect of barberry (*Berberis integerrima*) on lipid profile and systemic inflammation in subjects with cardiovascular risk factors: a randomized controlled trial. *BMC Complement Med Ther* ۲۲, ۵۹ (۲۰۲۲). <https://doi.org/10.1186/s12906-022-0539-8>
۲. Emamat, Hadi, et al. "The effect of purple-black barberry (*Berberis integerrima*) on blood pressure in subjects with cardiovascular risk factors: a randomized controlled trial." *Journal of Ethnopharmacology* ۲۸۹ (۲۰۲۲): ۱۱۵-۹۷.
۳. Mahdavi, N., Joukar, S., Najafipour, H., & Asadi-Shekaari, M. (۲۰۱۵). The promising effect of barberry (Zereshk) extract against experimental pulmonary microvascular remodeling and hypertension: A comparison with sildenafil. *Pharmaceutical Biology*, ۵۴(۳), ۵۰۹-۵۱۵.
<https://doi.org/10.3109/13880296.2015.105676>
۴. Musazadeh, Vali, et al. "The effect of *Berberis (vulgaris and integerrima)* on cardiovascular risk factors in patients with type ۲ diabetes mellitus: A systematic review, meta-analysis, and GRADE assessment." *Current Therapeutic Research* (۲۰۲۵): ۱۰۰۷۸۸.