

Medicinal herbs: Potential polypills in cardiovascular diseases

1 | MEDICINAL HERBS: POTENTIAL POLYPILLS IN CARDIOVASCULAR DISEASES

I have read the review article entitled "The feasibility of polypill for cardiovascular disease prevention in Asian Population" by Apichard Sukonthasarn and co-authors published in *The Journal of Clinical Hypertension* (2020; on line version).¹ I want to congratulate the authors for this successful review article and present idea.

The past decade, drug discovery has been moved from one drug-one target level to computational multi-target level. Based on this paradigm, a multi-target drug could offer beneficial synergistic effects for complex diseases such as cardiovascular diseases. Medical herbs featuring multi-constituents, multi-targets, and multi-effects are valuable resources for multi-target drug discovery.²⁻⁵ Approximately two-thirds of the world's plant species are widely used in medicines.^{5,6}

The cardiovascular drugs such as aspirin, digitalis, and verapamil have been derived from plants.^{5,7} Traditional systems of medicines have potential to contribute in future drug discovery. In traditional medicine, a single herbal medicine characterized as multi-components and multi-functions produces the desired pharmacological effects.^{5,8}

Persian medicine is one of the oldest medical schools in which medical herbs such as chamomile, lemon balm, and phyllanthus emblica containing biologically active constituents for cardiovascular diseases have been used. The beneficial effects of specific herbal extracts for cardiovascular disease depend on its complex constituents and interactions that can target several signaling pathways.⁹ For example, chamomile featured as a multi-component acts through multiple mechanisms including anti-inflammation, antioxidation, vasorelaxation, glycemic and lipid profile control, and anti-platelet to synergistically benefit patients with ischemic heart disease, or at risk for it.¹⁰⁻¹² We speculate that clinical knowledge of persian medicine could provide promising framework from specific medical herb for multi-component, multi-target drug, or polypill design.

CONFLICT OF INTEREST

There are no conflicts of interest to disclose.

AUTHOR CONTRIBUTIONS

Karimi, M contributed to design, critically revised the manuscript, gave final approval, and agreed to be accountable for all aspects

of work ensuring integrity and accuracy. Noorozi, S contributed to conception and design, drafted the manuscript, critically revised the manuscript, gave final approval, and agreed to be accountable for all aspects of work ensuring integrity and accuracy. Zargaran, A contributed to conception, critically revised the manuscript, gave final approval, and agreed to be accountable for all aspects of work ensuring integrity and accuracy.

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REFERENCES

- Sukonthasarn A, Chia Y-C, Wang J-G, et al. The feasibility of polypill for cardiovascular disease prevention in Asian Population. *J Clin Hypertens*. 2020. <https://doi.org/10.1111/jch.14075>.
- Ulrich-Merzenich GS. Combination screening of synthetic drugs and plant derived natural products—potential and challenges for drug development. *Synergy*. 2014;1(1):59-69.
- Zheng C, Wang J, Liu J, Pei M, Huang C, Wang YJMD. System-level multi-target drug discovery from natural products with applications to cardiovascular diseases. *Mol Divers*. 2014;18(3):621-635.
- Li P, Chen J, Wang J, et al. Systems pharmacology strategies for drug discovery and combination with applications to cardiovascular diseases. *J Ethnopharmacol*. 2014;151(1):93-107.
- Fabricant DS, Farnsworth NR. The value of plants used in traditional medicine for drug discovery. *Environ Health Perspect*. 2001;109(Suppl 1):69-75.

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6. Kasote DM, Katyare SS, Hegde MV, Bae H. Significance of antioxidant potential of plants and its relevance to therapeutic applications. *Int J Biol Sci*. 2015;11(8):982-991.
7. Shah SMA, Akram M, Riaz M, Munir N, Rasool G. Cardioprotective potential of plant-derived molecules: a scientific and medicinal approach. *Dose Response*. 2019;17(2):1559325819852243.
8. Yuan H, Ma Q, Ye L, Piao GJM. The traditional medicine and modern medicine from natural products. *Molecules*. 2016;21(5):559.
9. Ho JW, Jie M. Pharmacological activity of cardiovascular agents from herbal medicine. *Cardiovasc Hematol Agents Med Chem*. 2007;5(4):273-277.
10. Chandrashekhar V, Patel NM, Nidavani R, Vadiya JN, Ganapaty S. Anti-ischemic effect of german chamomile (*Matricaria recutita* L.) against ischemia/reperfusion induced myocardial damage in isolated rat heart. *Pharmacologia*. 2012;3(9):406-412.
11. Nargesi S, Moayeri A, Ghorbani A, Seifinejad Y, Shirzadpour E, Amraei M. The effects of *Matricaria chamomilla* L. hydroalcoholic extract on atherosclerotic plaques, antioxidant activity, lipid profile and inflammatory indicators in rats. *Biomed Res Ther*. 2018;5(10):2752-2761.
12. McKay DL, Blumberg JB. A review of the bioactivity and potential health benefits of chamomile tea (*Matricaria recutita* L.). *Phytother Res*. 2006;20(7):519-530.

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