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Chemical composition, therapeutic potential and perspectives of plants belonging to *Peucedanum* genus: A review

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This review focuses on ethnopharmacological uses of *Peucedanum* species, as well as the phytochemical, pharmacological and toxicological studies on this genus. Through this review, I intend to highlight the known and potential effects of the *Peucedanum* species or their isolated compounds and show which of traditional medicine uses have supported by pharmacological investigations. Several bioactive substances, including coumarins, polyphenols, flavonoids, phenolic acids, essential oils, diterpenes and other components, have been isolated from species of *Peucedanum*. Coumarins and essential oils are considered the main components of almost all *Peucedanum* plants and can be responsible for many of their biological and pharmacological activities of *Peucedanum* species such as anti-inflammatory, antidiabetic, anti-platelet aggregation, and antiproliferative activities, cardiopulmonary protection, neuroprotection and phototoxicity. Moreover, because the botanical classification of *Peucedanum* species by anatomical and morphological features is difficult, chemicals of essential oils and coumarins have been valuable as chemotaxonomic markers. In this review, I explain the importance of some coumarins, such as praeruptorins A and B, for preventing or treating cancer, cardiovascular problems and some inflammatory diseases. In conclusion, some *Peucedanum* species have emerged as a good source of the traditional medicine for treatment of inflammation, microbial infections and cardiopulmonary diseases and provides new insights for further investigations on isolated compounds specially on praeruptorins to find novel therapeutics and drug discovery. However, for uses of *Peucedanum* species to prevent and treat various diseases, the additional pharmacological studies to find the mechanism of action, safety and efficacy of them before starting clinical trials are required.

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Labetalol, nebivolol and propranolol relax human radial artery used as coronary bypass graft

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Objective: Beta-blockers are a heterogeneous class of agents that are used in the treatment of many cardiovascular diseases, especially hypertension and atherosclerosis, and are commonly prescribed after cardiac surgery. In the present study, the aim is to investigate the vasorelaxant effects of some common beta adrenoseptor blockers on the human radial artery (RA) *in vitro*, as well as their relaxation mechanisms.

Methods: RA rings sourced from human patients were mounted in an organ bath and tested for changes in isometric tension in relaxation response to labetalol, nebivolol and propranolol in the presence and absence of NG-nitro-L-arginine methyl ester (L-NAME, 3 x 10-5 mol/L) and tetraethyl ammonium (TEA, 3 x 10-4 mol/L).

Results: The labetalol (10-8 to 10-4 mol/L), nebivolol (10-8 to 10-4 mol/L) and propranolol (10- 8 to 10-4 mol/L) induced concentration-dependent relaxations on the RA rings, which had been precontracted with phenylephrine (10-6 mol/L). The relaxation response induced by labetalol in the isolated RA rings was significantly higher when compared to the nebivolol and propranolol samples ($p< 0.05$). L-NAME significantly reduced the relaxation of nebivolol ($p< 0.05$) and TEA significantly reduced the relaxation of labetalol, nebivolol and propranolol ($p < 0.05$).

Conclusion: We speculated that the relaxant effect of labetalol, nebivolol and propranolol was due partly to the Ca2+ -activated K+ channels. In addition, the relaxation induced by the nebivolol was largely related with nitric oxide release. Nebivolol, and partly propranolol, may provide significant therapeutic benefit, but Labetalol can be a good alternative for CABG with RA usage.

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