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Horse chestnut extract contracts bovine vessels and affects human platelet aggregation through 5-HT(2A) receptors: an in vitro study.

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Abstract

Extract from seeds and bark of horse chestnut (Aesculus hippocastanum L) is used as an herbal medicine against chronic venous insufficiency. The effect and mechanism of action on veins, arteries, and platelets are not fully understood. The aim of this study was to investigate the effects and mechanisms of action of horse chestnut on the contraction of bovine mesenteric veins and arteries, and human platelet aggregation. Contraction studies showed that horse chestnut extract dose-dependently contracted both veins and arteries, with the veins being the most sensitive. Contraction of both veins and arteries were significantly inhibited by the 5-HT(2A) receptor antagonist ketanserin. No effect on contraction was seen with the cyclooxygenase inhibitor indomethacin, the alpha(1) receptor antagonist prazosin or the angiotensin AT(1) receptor antagonist saralasin neither in veins nor arteries. ADP-induced human platelet aggregation was significantly reduced by horse chestnut. A further reduction was seen with the extract in the presence of ketanserin. In conclusion, horse chestnut contraction of both veins and arteries is, at least partly, mediated through 5-HT(2A) receptors. Human platelet aggregation is reduced by horse chestnut. The clinical importance of these findings concerning clinical use, possible adverse effects, and drug interactions remains to be investigated.

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