

Characterization of the hypotensive mechanism of the aqueous extract of *Crocus sativus* stigma and its two constituents, crocin and safranal, in rat

M. Imenshahidi*, H. Hossenzadeh, M. Razavi

School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, I. R. Iran,

Background and Aims: Hypertension is the most common cardiovascular disease. Many drugs that are using for treatmet of hypertension have adverse effects that may contribute to medication non-compliance. Furthermore, morbidity and mortality benefits have not been established with commonly used agents. There is accumulating evidence suggesting medicinal plants are unlimited reservoirs of drugs. The hypotensive effect of *Crocus sativus* aqueous extract, crocine and safranal has been reported . In this work, the antihypertensive mechanism of the *Crocus sativus* aqueous extract, safranal and crocin was studied in rat.

Methods: Rats were anesthetized and a ring from aorta was dissected and mounted in the organ bath. Then intact or endothelium-denuded aorta was constricted with phenylephrine (10⁻⁶ M) or KCl (80 mM) and the relaxant effect of cumulative concentrations of compound in the absence or presence of indomethacin, L-NAME were recorded.

Results: Our study showed that safranal (0/03 – 0/12 mg) reduced phenylephrine induced contraction dose-dependently ($p < 0.001$) in intact and endothelium-denuded aorta. Crocin (50-200 mg) reduced phenylephrine induced contraction dose-dependently ($p < 0.001$) only in intact aorta but not in endothelium-denuded aorta.

Conclusions: the vasorelaxatory effect of safranal is not dependent on endothelium and it has direct effect on vascular smooth muscle. Crocin acts via endothelium and extract acts via both mechanisms.

Keywords: Saffron; *Crocus sativus*; Safranal; Crocin; Rat aorta