

EFFECT OF BARAKOL ON BLOOD PRESSURE IN SPONTANEOUSLY HYPERTENSIVE RATS

L. Phivthong-ngam¹, W Thongsaard², Y. Sanvarinda³, T. Suwancharas⁴, M. Yajima⁵, HO. Murakami⁵, N. Ishikawa⁵

¹Department of Pharmacology, Faculty of Medicine, Srinakharinwirot University, Bangkok 10110, Thailand.

²Department of Physiology, Faculty of Medicine, Srinakharinwirot University, Bangkok 10110, Thailand.

³Department of Pharmacology, Faculty of Science, Mahidol University, Bangkok 10400, Thailand.

⁴Department of Surgery, Faculty of Medicine, Srinakharinwirot University, Bangkok 10110, Thailand.

⁵Department of Pharmacology, Aichi Medical University, Nagakute, Aichi, 4801195, Japan

ABSTRACT

Barakol, a 3 α ,4-dihydro-3 α ,8-dihydroxyl-2,5-dimethyl-1,4-dioxaphenalene ring structure, is a biologically active constituent of extracts of *Cassia siamea*, a Thai medicinal plant. The present study investigated the hypotensive effects of barakol in spontaneously hypertensive rats (SHR). The study of acute effect showed that intravenous infusion of barakol 0.1-20 mg/kg in anesthetized SHR rats caused significantly dose dependent decreases in both systolic and diastolic blood pressure. The maximum effect was found at the dose of 5 mg/kg. The chronic experiments were carried out on SHR rats with or without barakol 15 mg/kg/day orally for 8 weeks. Weight-matched Wistar-Kyoto (WKY) rats served as control. Systolic, diastolic blood pressure and heart rate were monitored before the beginning of the experiments and at 2 weeks intervals thereafter. Treatment with barakol resulted in a lowering of mean arterial blood pressure, but did not alter heart rate, plasma nitrite and nitrate concentrations. Endothelium-dependent relaxation of SHR aortic rings ex vivo was impaired and restored by supplementation with barakol. There was no significant difference in either endothelium-independent relaxation or vasocontracting response in all experimental groups. The following blood clinical biochemistry parameters and hematology; SGOT, SGPT, ALP, BUN, serum creatinine, serum glucose, total and direct bilirubin, Hb, Hct, platelet count, Wbc count and percent differential Wbc count were not changed. These results suggest that supplementation of SHR rats with barakol can reduce blood pressure and preserve endothelial function. These beneficial effects may not relate to nitric oxide. Its mechanism of action and long term effects need to be further investigated.

Keywords: barakol, hypertension, nitric oxide