Hemodynamic Effects of the Aqueous Extracts of *Syzygium polyanthum* Wight. Walp. *Var. Polyanthum* Leaves on Normotensive and Hypertensive Rats: Comparisons of Dose Response Curves and Time-Course Effects

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Syzygium polyanthum Wight (walp.) var. *Polyanthum* leaves are commonly consumed by Malays as fresh salad and flavour enhancer in culinary. Besides, concoction from *S. polyanthum* leaves is traditionally consumed as a treatment of hypertension. Study has revealed the significant hypotensive effects of the aqueous extracts of *S. polyanthum* leaves (AESP) on normotensive rats; however, the ability of AESP to lower the blood pressure in hypertensive rats needs further clarification. In current study, AESP was prepared by boiling of dried *S. polyanthum* leaves powder (ratio of 1:10) in hot water at 90°C for 30 min. Male Wistar Kyoto (WKY) and Spontaneously Hypertensive (SHR) rats (n=5), age ranging from 3 to 5 months-old were anesthetized using 50 mg/kg sodium pentobarbital intraperitoneally. Main carotid artery was cannulated and connected to a pressure transducer and coupled to the amplifier (BIOPAC Inc. Systems, USA). Mean arterial blood pressure (MAP) and the heart rate (HR) responses were obtained via MP30 BIOPAC Acquisition Systems (BIOPAC Inc, Systems, USA) and displayed via BIOPAC Student Lab Pro® v.3.6.7 software. Left jugular vein was cannulated for intravenous administrations of the vehicle (0.9% normal saline) and the increasing doses of AESP (10, 20, 40, 70 and 100 mg/kg) which is determined from our previous study. Responses for each dose were recorded within 20 min. In between the doses, 5 IU/ml heparin was injected to prevent from intravascular blood clotting. Results were analyzed using 1-way or 2-way ANOVA, followed by post-hoc Bonferroni's multiple comparison test (GraphPad PRISM®). AESP at doses of 20 to 100 mg/kg induced significant dose-dependent hypotension ($p<0.001$) by percentages of 19.61 ± 3.0, 33.28 ± 3.8, 41.84 ± 3.1 and 42.91 ± 3.2, respectively in WKY and 15.1 ± 2.2, 19.1 ± 2.8, 30.6 ± 4.7 and 31.3 ± 4.9, respectively in SHR. Only the highest dose of AESP (100 mg/kg) induced significant bradycardia ($p<0.001$) by percentages of 14.45 ± 2.3 in WKY and 10.85 ± 2.1 in SHR. Overall, the magnitude and the onset time for the hypotensive and bradycardic effects by AESP in both models were not significantly different. Besides, dose response curves for AESP-induced hypotension in both rat models started to be plateau at a similar dose of 40 mg/kg. ED_{50} value for hypotensive effects of AESP in WKY (22.6 ± 1.1 mg/kg) was not significantly different than in SHR (26.5 ± 1.2 mg/kg). The only difference between both models in this study relied on the sustainability of the hypotensive and bradycardic effects produced by AESP. Hypotensive effects by 20, 40, 70 and 100 mg/kg AESP were fully recovered within 2, 3, 4 and 6 min, respectively in WKY and within 1, 1, 2 and 3 min, respectively in SHR. The bradycardic effects by 100 mg/kg AESP achieved full recoveries within 20 min in WKY and 5 min in SHR**.** In conclusion, AESP significantly reduced the blood pressure of the normotensive and hypertensive rats to a comparable extent; however the rate of recovery for AESP in hypertensive rats was much faster than in the normotensive rats.