Piper sarmentosum Leaves Aqueous Extract Attenuates Vascular Endothelial Dysfunction in Spontaneously Hypertensive Rats

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Abstract

Piper sarmentosum is a tropical plant in Southeast Asia known for its traditional use in curing various ailments including hypertension. Previous research works have provided evidence for the herb's antihypertensive property. However, the exact mechanisms involved are still in question. The present study investigated the effects of Piper sarmentosum leaves aqueous extract (PSAE) treatment on vascular endothelin system in spontaneously hypertensive rats (SHRs). Four groups of SHRs were treated for 28 consecutive days, with negative and positive control groups receiving distilled water and 3 mg/kg perindopril, respectively. Another two groups arc the treatment groups, which received PSAE and combination of 1.5 mg/kg perindopril and PSAE. Weekly measurements of blood pressure showed that PSAE significantly reduced the systolic, diastolic, and mean arterial pressures ($P < 0.05$) of the rats. PSAE also increased mesenteric artery nitric oxide (NO) level ($P < 0.05$) and reduced endothelin-1 (ET-1) level ($P < 0.05$) in the treatment groups. Our results demonstrate that oral administration of PSAE reduced blood pressure in SHRs by reducing the ET-1 level while increasing NO production.

Keywords

KeyWords Plus: NITRIC-OXIDE; OXIDATIVE STRESS; GLOBAL BURDEN; QUERCETIN; PATHOPHYSIOLOGY; FLAVONOIDS; CONSTITUENTS; PRESSURE; DISEASE; MODEL

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