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## The use of Piper sarmentosum leaves aqueous extract (Kadukmy™) as antihypertensive agent in spontaneous hypertensive rats (Article)

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### Abstract

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**Background:** The National Health and Morbidity Survey in 2011 estimated that 35.1% (5.7 million) of Malaysian adults aged 18 and older suffer from hypertension. Hypertension is still treated by conventional medicine despite its exact aetiology being unknown. Studies showed that oxidative stress and low availability of nitric oxide (NO) causes an increase in vascular wall tension and increase blood pressure. Piper sarmentosum (PS) a traditional Malay herbal plant is well known for its high antioxidant content. Antioxidant is useful in improving cardiovascular diseases particularly hypertension. Thus, it is beneficial to determine the effect of PS leaves aqueous extract (Kadukmy™) on the blood pressure, NO level, oxidative stress markers and serum cholesterol level of the Spontaneous Hypertensive Rats (SHR). **Methods:** Rats were divided into five groups consisting of three treatment groups and two control groups. Baseline blood investigations were done before and following commencement of treatment. Spontaneous hypertensive rats were treated for 28 consecutive days and the blood pressure was measured weekly. **Results:** Kadukmy™ administration showed a significant reduction in systolic blood pressure (SBP), diastolic blood pressure (DBP) and mean arterial pressure (MAP) ( $P < 0.05$ ), increased serum NO level ( $P < 0.05$ ), reduced serum malondialdehyde (MDA) level ( $P < 0.05$ ) and reduction of serum total cholesterol level in groups treated with Kadukmy-1™. **Conclusions:** The result of the present study revealed that Kadukmy™ exerts its antioxidant activity to reduce oxidative stress damage, increase NO production and able to reduce blood pressure and cholesterol level. © 2015 Mohd Zainudin et al.; licensee BioMed Central.

### Author keywords

Antioxidant Aqueous Hypertension Nitric oxide Oxidative stress Piper sarmentosum

### Indexed keywords

EMTREE drug terms: antihypertensive agent cholesterol malonaldehyde nitric oxide  
Piper sarmentosum extract plant extract unclassified drug

EMTREE medical terms: animal experiment animal model antioxidant activity Article blood pressure  
blood pressure measurement cholesterol blood level controlled study  
diastolic blood pressure hypertension male mean arterial pressure nonhuman  
oxidative stress plant leaf rat spontaneously hypertensive rat systolic blood pressure

### Chemicals and CAS Registry Numbers:

cholesterol, 57-88-5; malonaldehyde, 542-78-9; nitric oxide, 10102-43-9

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