



Kalanchoe pinnata Aqueous Extract as a Potential Phytomedicine Candidate for the Management of Hypertension and Acute Myocardial Infarction

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Letter to the Editor

Cardiovascular Diseases (CVDs) are disorders of the heart and blood vessels and include coronary heart disease, cerebrovascular disease, rheumatic heart disease, Hypertension (HT) and other conditions. Four out of five CVD deaths are due to heart attacks and strokes [1]. CVDs have been a leading cause of death in the world and a major barrier to sustainable human development [2,3]. Hypertension (HT) is the major risk factor for CVDs and leading risk factor for global mortality [4]. In 2008, 40% of adults worldwide aged 25 years and above had been diagnosed with HT, and the number of people living with HT stood at 1 billion [2]. In rural Cameroon for instance, a study population of 733 revealed a prevalence of 31.1% [5]. The narrowing down of coronary arterial lumen may cause coronary heart disease or myocardial ischemia i.e. insufficient oxygen supply to myocardium, progressively leading to necrosis referred as Myocardial Infarction (MI). Both systolic and diastolic HTs increase the risk of MI. However, it is regrettable that access to conventional treatment for HT as well as other CVDs is still a challenge especially in low and middle-income countries. Patients actually face challenges such as low availability and affordability, which can be counteracted with alternative medicine.

Kalanchoe pinnata (Crassulaceae), also named *Bryophyllum pinnatum* (Crassulaceae), possesses an array of medicinal effects including for instance, to the best of our interest, cardiovascular properties [6-8]. *Kalanchoe pinnata* aqueous extract has been shown to produce dose-related significant decreases in arterial blood pressures and heart rates of spontaneously hypertensive rats, an animal model of genetically hypertensive patients [9]. Similar findings were later on got by Bopda et al. [10] who demonstrated that the plant extract prevents significantly the increase of systolic and diastolic arterial pressures in high salt-loaded rats, a model of metabolic HT. This effects associate with antioxidant activity of the plant extract, especially it increases the production of nitric oxide, an important endothelium-derived relaxation factor. In cat, the extract was reported to drop the blood pressure initially raised by an administration of adrenaline, such model representing an endocrine model of HT [11].

From the above, the plant extract therefore appears to have beneficial effects both in the vascular and cardiac tissues. This idea prompted Bopda et al. [12] to investigate on the cardio protective activity of the extract. The Isoproterenol-induced Acute Myocardial Infarction (AMI) animal model was used. *Kalanchoe pinnata* aqueous extract, at the dose 100 mg/kg/day prevented the heart from AMI.

The phytochemical analysis of the extract has revealed various compounds known with cardio protective and/or vasorelaxant properties associated with antioxidant activities. Some of those are flavonoids, phenolics, tannins and glycosides [13]. This extract could be an interesting candidate as phytomedicine for the management of cardiovascular dysfunctions, especially HT and AMI.

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