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# Antioxidant and vasorelaxant effects of aqueous extract of large cardamom in L-NAME induced hypertensive rats

*Uma Devi P*

*Amrita Vishwa Vidyapeetham, India*

Co-authors: **Kanthlal S K, Joseph J, Paul B** and **Vijayakumar M**
Amrita Vishwa Vidyapeetham, India

Inhibition of nitric oxide synthesis with $N^G$-nitro-L-arginine methyl ester (L-NAME) induces vascular dysfunction, hypertension, oxidative stress and hypertrophy. The aim of the present study was to investigate whether aqueous extract of large cardamom (AELC) could prevent vascular dysfunction and inhibit development of hypertension in L-NAME treated rats. Male Wistar rats (8-12 weeks, 150 to 250 g) were administered with L-NAME (40 mg/kg/day) in drinking water for 28 days. Captopril (20 mg/kg/day) or AELC (100, 200 or 400 mg/kg/day) was fed to animals simultaneously with L-NAME. Blood pressure was measured by non-invasive tail cuff method. Blood and tissue samples (heart, kidney and aorta) were collected for the determination of malondialdehyde, glutathione and nitric oxide content. The aorta was used for histological analysis and vascular study. Daily oral administration of L-NAME induced a progressive increase in the systolic, diastolic and mean arterial pressure. At the end of treatment, the systolic, diastolic and mean arterial pressures were 170.56, 138.31 and 148.48 mm Hg, respectively. Treatment with captopril and AELC produced a dose dependent reduction in systolic, diastolic and mean arterial pressure in L-NAME induced hypertensive rats. L-NAME caused hypertrophy of aorta, increased plasma and tissue lipid peroxidation but significantly reduced plasma nitrite and glutathione concentrations, which were significantly prevented by captopril and AELC. Endothelium dependent vasorelaxation responses to acetylcholine were reduced in aortic rings from L-NAME hypertensive rats compared to control rats. Treatment with captopril and AELC improved the vascular response to acetylcholine. The present results demonstrate that AELC is able to reduce blood pressure and alleviate the histopathological changes in L-NAME induced hypertensive rats. These effects are likely due to the ability of large cardamom extract to restore the nitric oxide level and suppress oxidative stress.

## Biography

Uma Devi P has completed her PhD in Pharmacology from Jamia Hamdard University, New Delhi. Currently, she is the Head of Pharmacology Department at Amrita School of Pharmacy, Kochi, India. Prior to this, she served as Research Scientist in the Medical Affairs and Clinical Research Department, Ranbaxy Laboratories Limited, Gurgaon. She has published more than 17 papers in reputed journals and is a Member of European Medical Writers Association.

umadeviaims@gmail.com

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