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Protective effect of Melothria maderaspatana leaf fraction on electrolytes, catecholamines, Endothelial Nitric Oxide synthase and Endothelin-1 peptide in uninephrectomized deoxycorticosterone acetate-salt hypertensive rats

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This study was designed to investigate the protective effect of ethyl acetate fraction of Melothria maderaspatana (EAFM) leaf on electrolytes, catecholamines, endothelial nitric oxide synthase (eNOS) and endothelin-1 (ET-1) peptide in uninephrectomized deoxycorticosterone acetate (DOCA)-salt hypertensive rats. Administration of DOCA-salt significantly increased the systolic and diastolic blood pressure and treatment with EAFM significantly lowered the blood pressure. In DOCA-salt rats, the levels of sodium and chloride increased significantly while potassium level decreased and administration of EAFM brought these parameters to normality. The levels of epinephrine and norepinephrine increased significantly in DOCA-salt rats and administration of EAFM significantly decreased these parameters to normality. DOCA-salt hypertensive rats exhibited significantly decreased L-arginine and nitrite+nitrate levels and administration of EAFM brought these parameters to normality. DOA-salt hypertensive rats showed down-regulation of eNOS and up-regulation of ET-1 protein expressions in heart and kidney, and treatment with EAFM prevented down-regulation of eNOS and significantly down-regulated the ET-1 protein expressions. In conclusion, EAFM provides good blood pressure control by enhancing potassium and decreasing sodium levels, decreasing levels of epinephrine and norepinephrine, and preventing down regulation of eNOS and significantly down-regulating ET-1 protein expression.

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