Influence of acetonylgeraniin, a hydrolyzable tannin from Euphoria longana, on orthostatic hypotension in a rat model

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Abstract

Acetonylgeraniin, an active principle isolated from the seeds of Euphoria longana Lam. (Sapindaceae), reversed the fall in arterial blood pressure in conscious hypertensive rats (SHRs) with orthostatic hypotension induced by injection of hexamethonium into animals subjected to 90 degrees head-up tilts for 60 seconds. However, acetonylgeraniin failed to affect prazosin-induced orthostatic hypotension. Plasma noradrenaline (NA) and mean blood pressure were elevated dose-dependently by an intravenous injection of acetonyl-geraniin into the rats; this increase in blood pressure was totally abolished by prazosin. Failure of hexamethonium or pentolinium, the blockers of ganglionic nicotinic receptors, to influence the NA releasing action of acetonylgeraniin ruled out the participation of ganglionic stimulation. This NA-releasing action of acetonylgeraniin was, however, totally abolished by the inhibitors of noradrenergic nerve terminals, guanethidine or bretylium. Also, the activity of this tannin was not modified by adrenalectomy. Thus, a direct release of NA from the noradrenergic nerve terminals by acetonylgeraniin seems responsible for the reversing of orthostatic hypotension.