

Punicalagin-induced release of norepinephrine

reverses orthostatic hypotension in rat

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Abstract

Punicalagin, an active principle isolated from the leaves of *Lumnitzera racemosa* (Combretaceae), reversed the fall in arterial blood pressure in conscious Wistar rats with orthostatic hypotension induced by injection of hexamethonium into animals subjected to 90° head-up tilts for 60 s. Punicalagin was found to be less effective on prazosin-induced orthostatic hypotension. Plasma norepinephrine (NE) was elevated by intravenous injection of punicalagin in a dose-dependent manner from 0.5 to 15 mg/kg, both in normotensive rats and the orthostatic hypotensive animals. An increase of mean blood pressure was also found in rats that received the injection of punicalagin; this increase in blood pressure was totally abolished by prazosin. Failure of hexamethonium or pentolinium, antagonists of ganglionic nicotinic receptors, to influence the NE releasing action of punicalagin ruled out the participation of ganglionic stimulation. This NE-releasing action of punicalagin was, however, totally blocked by the inhibitors of noradrenergic nerve terminals, guanethidine or bretylium. Also, the activity of punicalagin was not modified by adrenalectomy. Thus, a direct release of NE from the noradrenergic nerve terminals by punicalagin seems responsible for the reversal of orthostatic hypotension.