

THE EFFECTS OF PIPERINE ON ISOLATED RIGHT AND LEFT RAT ATRIA

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The effects of piperine on cardiovascular system have been studied on isolated right and left rat atria. Piperine at five doses, 3, 6, 12, 24, and 48 $\mu\text{g/ml}$, was found to produce dose-dependent positive chronotropy and inotropy on isolated right and left rat atria respectively. The time to maximum effect on both right atrial rate and left atrial isometric tension were about 3-5 min after addition of drug. With high doses (24 and 48 $\mu\text{g/ml}$) these initial stimulations were followed by depression of both the rate and contractile force. Reserpine pretreatment greatly reduced the positive chronotropy and inotropy about 58% and 98% respectively. In addition, the positive chronotropic effect of piperine was attenuated by 0.15 $\mu\text{g/ml}$ propranolol (about 50%). Alpha-adrenoceptor blocking agent (phentolamine 0.32 $\mu\text{g/ml}$) and 5-HT antagonist (methylsergide 0.47 $\mu\text{g/ml}$ and cyproheptadine 0.02 $\mu\text{g/ml}$) did not affect both positive chronotropy and inotropy. Neuronal uptake inhibitor of noradrenaline, desipramine 0.27 $\mu\text{g/ml}$ and cocaine 9.1 $\mu\text{g/ml}$, greatly reduced the positive chronotropic and inotropic effects by 60% and 90% respectively. It is concluded that piperine mediates the positive chronotropic and inotropic effects mainly by indirectly stimulates the release of catecholamine from adrenergic nerve in atria.