EFFECT OF PHYSOSTIGMINE ON CARDIOTONIC ACTIVITY OF PAROTOID GLAND SECRETION OF *BUFO MELANOSTICTUS* (SCHNEIDER) ON ISOLATED HEART OF FROG

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Abstract - Amphibians are treated as bioindicators of aquatic and terrestrial ecosystems by means of their sensitivity towards environmental changes and are the most threatened and rapidly declining vertebrate groups disappearing from different habitats on a global scale. This decline is mainly because of extensive use of agrochemicals especially the pesticides. Amphibian skin is morphologically, biochemically and physiologically a complex organ possessing a wide range of functions necessary for their survival. In view of the importance of bioactive compounds present in the secretions of parotoid glands to pharmacology, the present investigation was carried out to study the cardiotonic activity of parotoid gland secretion of common Indian Toad *Bufo melanostictus* on isolated perfused frog heart (*Rana tigrina*). The cardiotonic activity of parotoid gland secretion of *B. melanostictus* in normal as well as when induced with physostigmine (eserine) (an organophosphate) was studied. The cardiotonic activity was studied through Syme's technique; digoxin and propranolol were used as standard drug and β-blocker respectively to characterize the effects on the receptors. The isolated perfused and hypodynamic heart of frog showed a dose dependent positive ionotropic effects. Cardiac stimulant activities were exhibited by the parotoid gland secretion on frog's heart. The effect of physostigmine induction on toad secretion and its extract was not blocked by propranolol. Thus, the present investigation reports that the parotoid gland secretion increased the force of contraction, heart beat and cardiac output in perfused frog's heart, whereas, there was no change on hypodynamic heart, indicating that there may be existence of two components, one with β–receptor stimulating activity and other acting directly on the heart (independent of β_1-adrenoreceptors).