BIOCHEMICAL AND ELECTROPHYSIOLOGICAL CHARACTERIZATION OF THE TOXIC COMPONENT FROM THE VENOM OF THE GREATER WEEVER FISH *TRACHINUS DRACO*

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The venom of the greater weever fish, *Trachinus draco* was analysed to determine its toxicity, stability and biological properties. Crude venom prepared from the venom apparatus of one fish had a MLD of about 2 µg venom protein per g mouse. The venom caused a significant tetraphenylphosphonium (TPP) release from preloaded rat brain particles. The venom also possessed hemolytic activity with EC_{50} of 75 ng/ml for rabbit erythrocytes. The hemolytic component of the venom was purified to near homogeneity by ammonium sulphate precipitation followed by HPLC. The purified hemolysin had a molecular mass of 105 kDa and an EC_{50} of 3 ng/ml with rabbit erythrocytes.

Since the purified hemolysin looses quickly its biological activity under physiological conditions, we had to use the crude venom for electrophysiological experiments. At motor endplates of *M. triangularis sterni* of mice the venom (5-50 µg/ml) caused presynaptically a massive quantal release of acetylcholine and postsynaptically a strong decrease of the membrane potential followed by damages of nerve terminals and muscle fibres. In isolated outside-out membrane patches from bovine adrenal chromaffin cells single channel currents evoked by the venom have been recorded. The single channel conductance of the largest pores is 2500 pS. These pores are nonselective for mono- and divalent cations. The existence of 3 to 5 subconductance states each of about 500 pS indicates the heterogeneity in pore formation and may be due to pores composed of 3 to 5 monomers.

From our data we conclude that the venom of the greater weever fish possesses hemolytic and cytotoxic activity which is related to a single component of the venom and which is most probably responsible for the clinical symptoms and the lethal activity.

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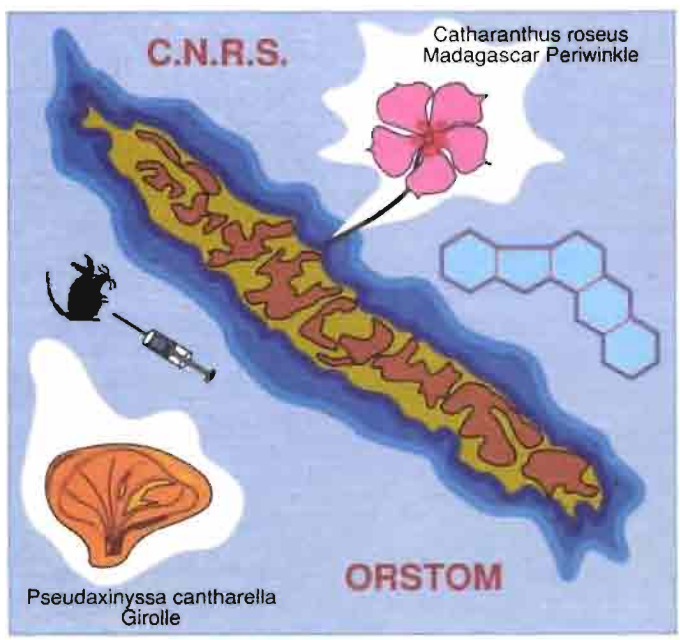

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