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Target specific PLA2s and PLA2complexes from Russell's viper venom

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The snake venom is an mixture of toxic and nontoxic proteins. The toxic proteins include enzymatic and non enzymatic proteins. The main toxic enzymes are PLA2s and PLA2 containing toxic complexes, hemorrhagic proteases and hyluradinases. Among all enzymes PLA2s are well studied in terms of structure, function and mechanism of pharmacological action. Most of toxic PLA2s are basic in nature and target specific. The well studied viper snake venom PLA2s from Indian origin are VRV-PL-V, VRV-PL-VIII, VRV-PL-VI, VRV-PL-VII and VRV-PL-IX. The VRV-PL-V and VRV-PL-VIII are major toxic PLA2 from southern region Russell's viper venom. VRV-PL-V is neurotoxic and VRV-PL-VIII induces hemorrhage in the lungs.VRV-PL-VI from northern region India causes hemorrhage in pituitary gland and peritoneal cavity. VRV-PL-VII and VRV-PL-IX are neurotoxic PLA2 from western region India. VRV-PL-IX is presynaptic, VRV-PL-VII and VRV-PL-V (Southern, India) are exhibited pre and post synaptic neurotoxicity in cultured hippocampal neurons.This is the first report from the snake venom PLA2s having both pre and post synaptic neurotoxicity. Furthermore A novel heterotrimeric toxic complex "Reprotoxin" isolated from western region Russell's viper venom, having PLA2, protease and trypsin inhibitor peptide. It is target specific to Male and female reproductive systemaffecting Leydig andsertoli cells in males and Follicles in females.

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Capparis spinosa L. fruits aqueous extract improves insulin resistance in streptozotocin-induced diabetic mice

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Majority of diabetic patients make recourse to medicinal plants/herbal-based remedies as alternative therapies to diabetes mellitus. *Capparis spinosa* L. (CS) is a medicinal plant used in the traditional medicinal for the treatment of diabetes mellitus, however, the mechanism of action involved in this pharmacological property of this plant remains undetermined. This study was undertaken in order to evaluate the effect of aqueous CS extract on insulin resistance in diabetic mice. Both single and repeated oral administrations of aqueous CS extract were performed multi-low dose streptozotocin-induced (MLDS) diabetic mice. In addition, in order to determine the effect of aqueous CN extract on insulin resistance, euglycemic hyperinsulinemic clamp has been performed and the endogenous glucose production has been analysed using a perfusion of perfusion of 3-3H glucose. Our present study has shown that aqueous CS extract evoked a potent hypoglycaemic activity in MLDS diabetic mice. In other hand, perfusion of 3-3H glucose demonstrated that this hypoglycaemic activity was accompanied by a decrease in basal endogenous glucose production (EGP). EGP was lower in CS-Treated group when compared to the control group, 17.5±2.4 vs 27.2±7.1 mg/kg.min-1 ($p<0.001$) respectively. Using the euglycemic hyperinsulinemic clamp technique, the study demonstrated that CS treatment also improves insulin sensitivity in peripheral tissues. We conclude that the hypoglycaemic activity of aqueous CS extract is due, at least in part, to the inhibition of basal endogenous glucose production and the improvement of peripheral insulin resistance in MLDS diabetic mice.

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