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Kinetic of α -amylase inhibition by *Salvia mirzayanii* extract and its fractions, as a model for treatment diabetesSoheila Moein¹, Mahmood Reza Moein², Elham Pimoradloo³ and Mahmood Vessal⁴¹Hormozgan University of Medical Sciences, Iran²Shiraz University of Medical Sciences, Iran³Islamic Azad University, Iran⁴Islamic Azad University of Shiraz, Iran

Introduction & Aim: Type-2 Diabetes Mellitus (T2DM) affects a large population worldwide. This disease is a complex heterogeneous group of metabolic disorders including hyperglycemia and impaired insulin action and/or insulin secretion. Amylase inhibitors can reduce carbohydrate digestion rate and have the potential to prevent development of type-2 diabetes mellitus. The Labiatae is one of the largest plant families grown globally and one of the members of this family is *Salvia mirzayanii* Rech. F. & Esfand, which used for treatment diabetes. In present study, inhibitory potential of *Salvia mirzayanii* extract and its different fractions were investigated.

Methodology & Theoretical Orientation: Ethanol extract of this plant leaves was fractionated using petroleum ether, chloroform, ethyl acetate and n-butanol solutions. To measure enzyme inhibition enzyme, substrate and samples were mixed and for evaluation mode of inhibition, constant amounts of α -amylase were incubated with increasing concentrations of substrate. Acarbose was used as a standard.

Results: The results showed that ethanol extract of *Salvia mirzayanii* was the most potent inhibitors of α -amylase in comparison with the other samples. All the samples exhibited uncompetitive inhibition except Petroleum ether fraction which showed competitive inhibition.

Conclusion & Significance: Ethanol extract of *Salvia mirzayanii* showed the highest α -amylase inhibitory activity. In this study, most of the samples are uncompetitive inhibitors and one of the advantages of these inhibitors is that they would be effective at lower concentrations of substrate in comparison with competitive inhibitors which require higher concentrations of the substrate for the same effects.

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