**GOJI BERRY’S POTENTIAL INHIBITION OF PANCREATIC α-AMYLASE AS AN ACTION MECHANISM FOR THE POSSIBLE EFFECTS AGAINST OBESITY AND DIABETES.**

Teixeira, I.N. ¹; Rezende, E.I. ²; Costa, B.L.B. ³; Santos, R.O. ³; Pereira, L.L.S. ⁴

¹Student of Nutrition, Biochemistry Laboratory, Department of Chemistry, Federal University of Lavras, Minas Gerais, Brazil.

²Student of Agronomy, Biochemistry Laboratory, Department of Chemistry, Federal University of Lavras, Minas Gerais, Brazil.

³Student of Chemistry, Biochemistry Laboratory, Department of Chemistry, Federal University of Lavras, Minas Gerais, Brazil.

⁴Biochemistry professor, Biochemistry Laboratory, Department of Chemistry, Federal University of Lavras, Minas Gerais, Brazil.

**INTRODUCTION AND AIMS**

The Goji Berry (*Lycium barbarum*) is an oriental fruit that became a mania in the Western world. Clearly it is necessary some scientific proof before recommending it. The weight loss promise is the main reason of the growing consumption. In this context, the aim is to evaluate the inhibitory potential of Goji Berry (GB) extracts on the pancreatic α-amylase enzyme in attempt to suggest an action mechanism that justifies the weight loss and the hypoglycemic activity. The potential inhibition of this enzyme may be associated with the glucose decreased uptake in the duodenum. So, it presents itself as an auxiliary tool in treatment of diabetes and obesity.

**MATERIALS AND METHODS**

The α-amylase activity was determined according to Noelting & Bernfeld; in order kinetics 4 times (10, 20, 30 and 40 minutes).

The enzyme inhibition percentage was calculated by the expression:

\[ \% \text{inibição} = \left( \frac{\Delta a^\text{Controle} - \Delta a^\text{Amostra}}{\Delta a^\text{Controle}} \right) \times 100 \]

The inhibition percentage was obtained by the slope of the graphic line (absorbance x time) of enzyme activity control test (without sample) and enzyme + inhibitor (with sample). The slope is due the per minute product formation rate and the inhibitor presence causes decrease in that inclination. The absorbance values were converted to product by a micromol of glucose standard curve.
RESULTS AND CONCLUSIONS

It was observed that the aqueous extract of GB strongly inhibited α amylase 1:80 was the chosen concentration to determine the inhibition μmol.min⁻¹ in a safe range for calculation (40-80% inhibition).

Activity of pancreatic α amylase in the absence (control) and presence (sample) inhibitor

Abs (540nm)

The hypoglycemic and slimming effects of Goji Berry can be related to the strong inhibition of pancreatic α amylase.

Acknowledgements

Study developed with the support of FAPEMIG.

Key Words: enzyme inhibition, Goji Berry, digestion.

References