SYZYGIUM SP: HYPOGLYCEMIC POTENTIAL ASSOCIATED TO ALPHA-AMYLASE INHIBITION?

Freitas, T.C.¹; Pereira, L.L.S.²; Mendonça, R.J.¹; Pereira, C.A.¹

¹Laboratório de Bioquímica, Instituto de Ciências Biológicas e Naturais, Universidade Federal do Triângulo Mineiro – UFTM, CEP 38015.050, Uberaba, MG, Brasil.
²Laboratório de Bioquímica, Departamento de Química, Universidade Federal de Lavras – UFLA, CEP 37200.000, Lavras, MG, Brasil.

Currently, 387 million people worldwide have diabetes, of which, 179 million are undiagnosed. The search for new drugs and aids in the treatment of diabetes, has become research goals in recent years. In this context, Syzygium sp species has gained importance because of its supposed hypoglycemic effect. Therefore, this study aimed to investigate the inhibition of amylase by Syzygium sp teas. To this end, were used, samples of teas Syzygium sp, under different extraction methods (decoction mashing and infusion) in the ratio 1:200 (w/v) in water, to simulate household. The extracts have been used in alpha-amylase inhibition assays before and after exposure to simulated gastric fluid, as antidiabetic and hypoglycemic hypothesis of the mechanism of action. Further analyzes were performed with Maldi/Tof spectrometry for the presence of phenolic compounds known as alpha-amylase inhibitors. The results showed significant inhibition of the enzyme alpha-amylase, with the decoction (between 81.82% and 97.73%). After exposure to simulated gastric fluid, there was a reduction of inhibition in all extraction methods. The spectrometric analysis revealed the presence of luteolin, already described as an important inhibitor of alpha-amylase present in Syzygium cumini seeds. However, its presence in Syzygium sp leaves, and particularly in commercial teas, had not yet been reported. It is concluded that aqueous extracts of Syzygium sp obtained by decoction in a ratio of 1:200 showed a high percentage of alpha-amylase enzyme inhibition, suggesting a potential hypoglycemic and antidiabetic effect, probably associated with the presence of luteolin. Additional information from biological assays and inhibition of alpha-amylase with luteolin are needed to support efficacy claims of Syzygium sp extracts.

Key Words: amylase, Syzygium, diabetes