

## Hypoglycaemic activity and inhibitory effect of some morus species on $\alpha$ -amylase

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**Background and Aims:** Diabetes mellitus (DM) is one of the most common endocrine diseases. One of the beneficial therapeutic approaches (especially in diabetes type II) is said to be the control of postprandial hyperglycemia through the inhibition of carbohydrate hydrolyzing enzymes (such as  $\alpha$ -amylase). The leaves of mulberry trees (*Morus* species, Moraceae) have long been used to control DM around the world. The antidiabetic property of some *Morus* species has been studied by some scientists. The aim of this study was to examine the in vitro  $\alpha$ -amylase inhibitory potency of some *Morus* species and compare them with each other.

**Methods:** The ethanol extracts obtained from three *Morus* including *M. alba* L. (white mulberry), *M. alba* L. var. *nigra* and *M. nigra* L. (black mulberry) were tested against  $\alpha$ -amylase and inhibitory activity of each extract, expressed as IC<sub>50</sub> values, calculated from Log concentration-response curve. As positive control acarbose was used. The results were statistically compared by one-way ANOVA to see the significance.

**Results:** Among the plants studied, two species *M. alba* and *M. alba* var. *nigra* demonstrated inhibitory concentration dependent effects on the  $\alpha$ -amylase activity. The strongest activity was shown by the extract of *M. alba* var. *nigra* [IC<sub>50</sub> = 13.26 (12.86 – 13.66) mg/mL]. *M. alba* extract revealed a weaker activity [IC<sub>50</sub> = 17.60 (17.39 – 17.80) mg/mL] ( $P < 0.0001$ ). Although enzyme inhibition activity was observed by the extract of *M. nigra* but it was not concentration-dependent inhibition.

**Conclusions:** In general, the in vitro study indicated that *Morus* species can serve as natural  $\alpha$ -amylase inhibitors and might possess therapeutic antidiabetic effects in the diabetes type II.

**Keywords:**  $\alpha$ -Amylase inhibitory activity; Diabetes mellitus; *Morus* species