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Enzyme inhibitory activities of *Nymphaea alba* fruit extracts

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Statement of the Problem: In the developing countries the diabetes and also the hyperuricemia can cause many problems for people's health and has shown an increasing trend among the urban population. The studies published before reported that the alcoholic extracts of *Nymphaea alba* from the Danube Delta Biosphere Reserve have bioactive compounds like polyphenols and flavonoids. The *Nymphaea alba* fruit extracts were investigated further to determine their therapeutic potential to inhibit key enzymes involved in carbohydrate metabolism or in the catabolism of purines.

Methodology & Theoretical Orientation: The evaluation of enzyme inhibitory activity of alcoholic extracts of *Nymphaea alba* fruits was carried out against α -amylase

and xanthine oxidase. It is known that polyphenols readily complex with protein and as a result, there is an inhibition of enzyme activity. Enzyme inhibitory activities of the extracts from *Nymphaea alba* fruits were assayed in vitro.

Findings: The results indicate that the evaluated alcoholic extracts were exerted higher inhibitory activity against both α -amylase and xanthine oxidase enzymes, having the highest xanthine oxidase inhibitory activity ($IC_{50} = 160 \mu g/mL$), and also α -amylase having highest inhibitory activity ($IC_{50} = 4 mg/mL$).

Conclusion & Significance: The obtained results suggest that the *Nymphaea alba* fruit extracts have the major components inhibiting the α -amylase and xanthine oxidase activity in vitro.