# Evaluation of antidiabetic potential of selected herbal preparations

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## Background

• Diabetes is a metabolic disease causing many serious complications.
• There is a growing interest in natural methods of alleviating the symptoms of the disease.
• Among the antidiabetic drugs glucosidase inhibitors occupy an important place.

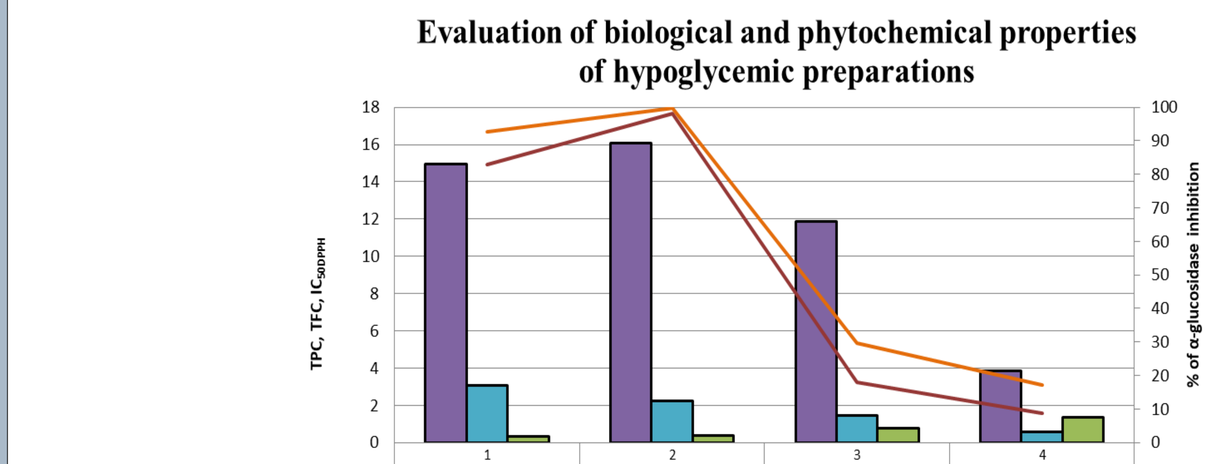
## Objective

• The aim of the study was assessment of the α-glucosidase inhibitory activity, analyze of the antioxidant properties, and determination of polyphenols and flavonoids contents of selected herbal preparations with potential antidiabetic action: (**1**) *Mori albi folium* 100%; (**2**) *Mori albi folium* 70%, *Cinnamomi cortex* 30%; (**3**) *Phaseoli pericarpium* 40%, *Urticae herba* 17%, *Mori albi folium* 15%, *Taraxaci herba* 15%, *Graminis rhizoma* 13%; (**4**) *Phaseoli pericarpium* 40%, *Urticae herba vel Urticae folium* 30%, *Graminis rhizoma* 20%, *Taraxaci herba et radicis* 10%.

## Methodology

• The water extracts obtained from herbal preparations were subsequently examined in regards to α-glucosidase inhibition and evaluation of antioxidant properties (DPPH analysis), by using UV spectrophotometric measurements.
• The phytochemical studies were carried out by determining the total content of polyphenols using the Folin-Ciocalteu reagent. While the content of flavonoids was investigated by using a methanol solution of aluminum chloride (III).

## Figure 1




| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| TPC mg GAE/g of dry herb | 14,94 | 16,06 | 11,89 | 3,83 |
| TFC mg QE/g of dry herb | 3,06 | 2,23 | 1,43 | 0,56 |
| DPPH IC50 mg/ml | 0,310 | 0,351 | 0,745 | 1,336 |
| % of α-glucosidase inhibition (3,3 mg/ml in the sample) | 83,02 | 98,06 | 17,86 | 8,83 |
| % of α-glucosidase inhibition (6,7 mg/ml in the sample) | 92,82 | 99,78 | 29,70 | 17,13 |

## Findings

• The strongest inhibition of α-glucosidase was observed in the case of (2) and (1) plants, respectively.
• This activity correlates with the higher antioxidant activity and content of polyphenols and flavonoids, compared to other preparations (Figure 1).

## Conclusions

• *Mori albi folium* extract demonstrates the high ability to inhibit of α-glucosidase activity.
• Presence of *Mori albi folium* in the herbal blends increases its biological activity.
• The hypoglycemic activity of *Mori albi folium* may be amplified by addition of *Cinnamomi cortex*.
• Total content of polyphenols and flavonoids can combined with the ability of extract to inhibit α-glucosidase activity.

## References

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