



27th Annual International Scientific Conference
RESEARCH FOR RURAL DEVELOPMENT 2021

12-14 May 2021, Jelgava, Latvia

**TOTAL PHENOLIC CONTENT AND ANTIRADICAL ACTIVITY
OF HONEY POWDERS**

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Introduction

Honey is a well-known food product over the centuries due to its sweet taste, high nutritional value and health promoting properties.

Honey powder is an interesting and innovative food product, which could be used to substitute liquid honey. This attractive food product also could be used as an alternative additive in food production and gastronomy.

Research Aim

Phenolic compounds are very important group of natural compounds due to their antioxidative properties. The aim of the research was to determine the total phenolic content and antiradical activity of the freeze-dried honey powder samples by spectrophotometric method.

Materials and Methods

Buckwheat honey, which was harvested in Jelgava district in 2019, was used for drying experiments. Mannitol and maltodextrin were used as carriers to obtain honey powder by freeze-drying technique. The obtained freeze-dried honey sample were analyzed using spectrophotometric assay. Total phenolic content in the samples was determined by Folin–Ciocalteu method. Antiradical activity was evaluated using 2,2-diphenyl-1-picrylhydrazyl (DPPH) reagent.

Results

Freeze-drying method was performed to obtain honey powder samples. The duration of drying process was 72 hours. The chosen dehydration technique is well-known in food industry and pharmaceuticals as bioactive compounds preserving drying method. In this study, four formulation were prepared to obtain honey powders. The ratio of honey and carrier (maltodextrin and mannitol) in the feed solution were 1:1 and 1:2.

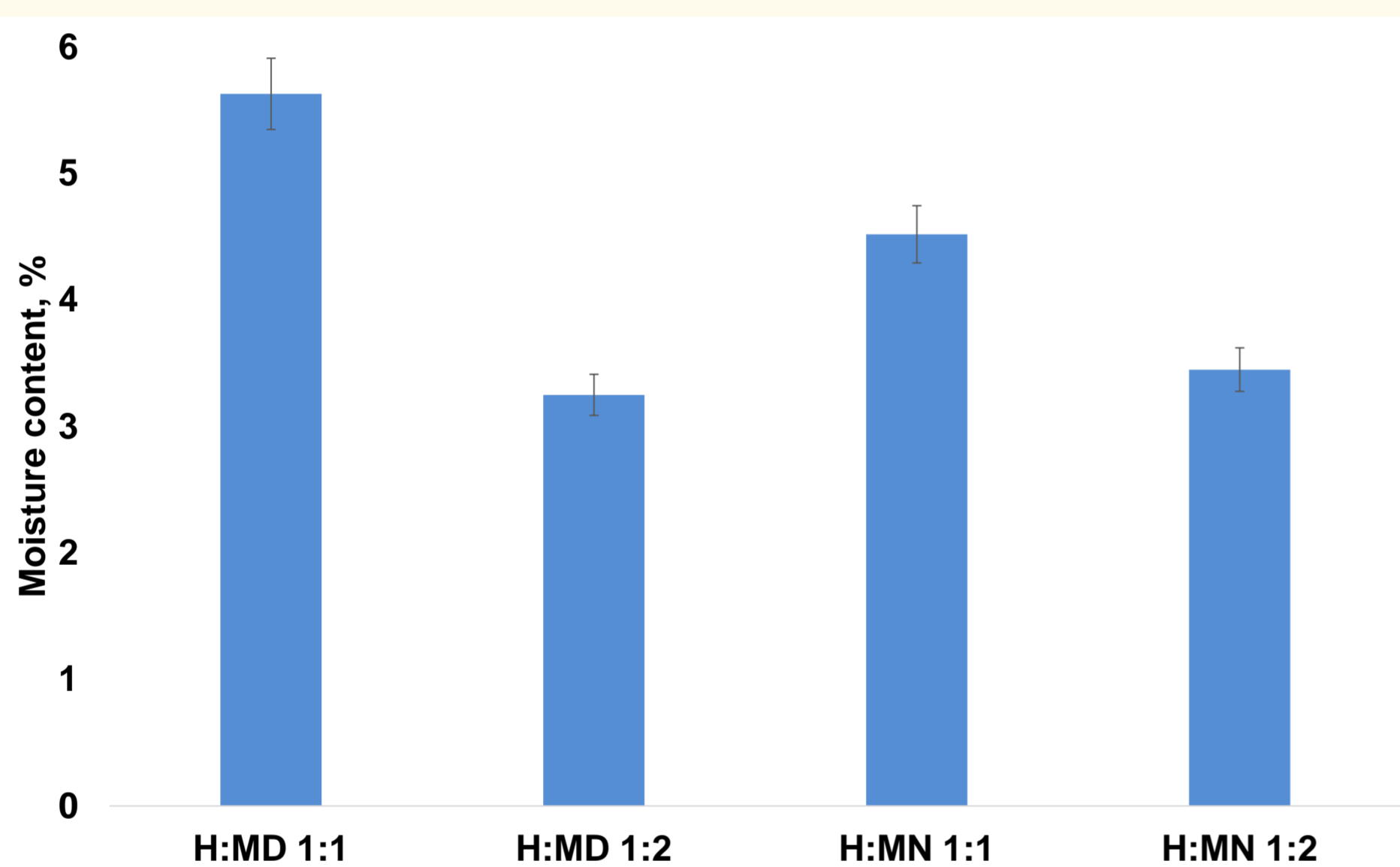


Figure 1. Moisture content in honey:maltodextrin 1:1 (H:MD 1:1), honey:maltodextrin 1:2 (H:MD 1:2), honey:mannitol 1:1 (H:MN 1:1), honey:mannitol 1:2 (H:MN 1:2) powder samples.

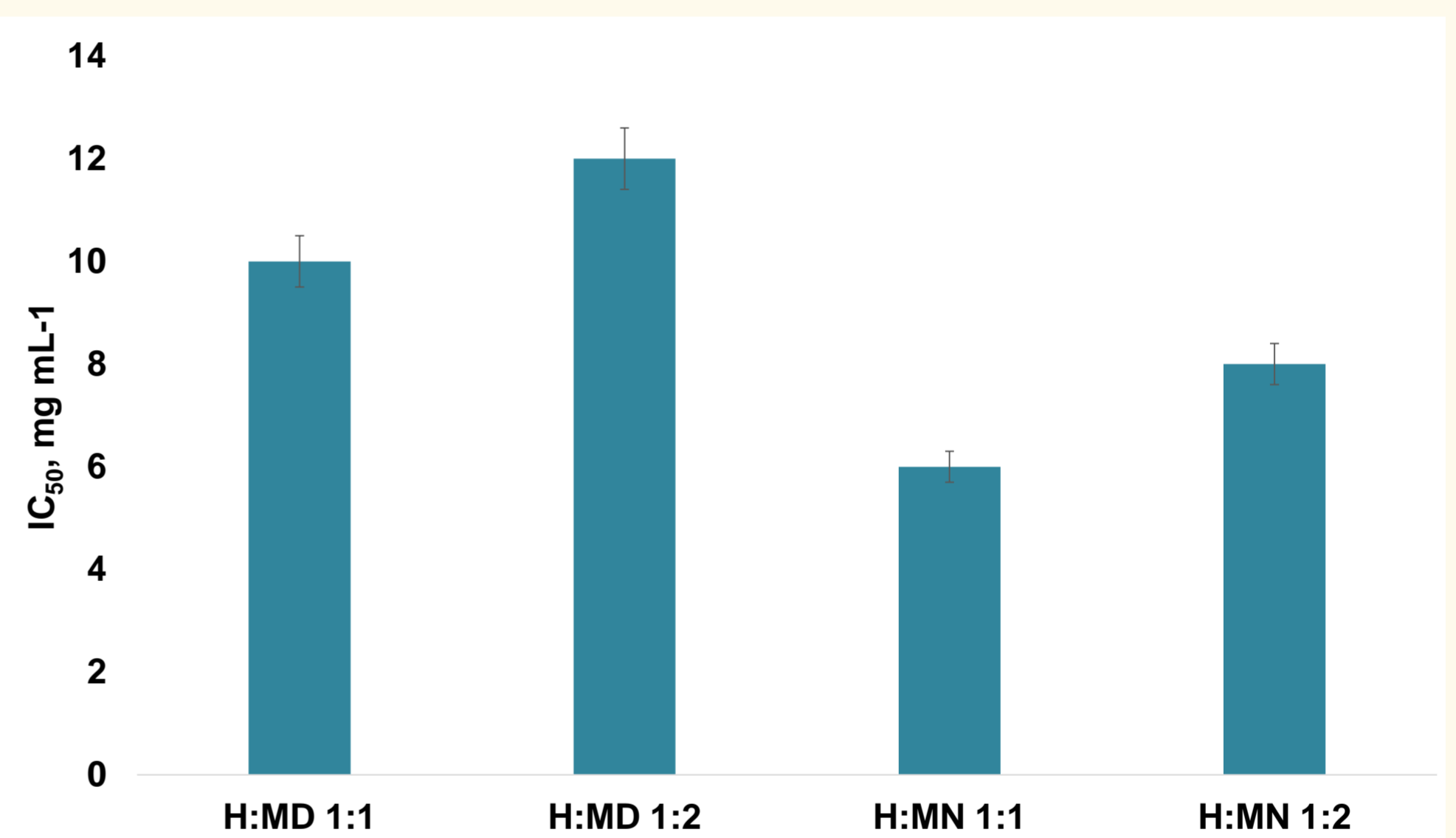


Figure 2. Antiradical activity in honey:maltodextrin 1:1 (H:MD 1:1), honey:maltodextrin 1:2 (H:MD 1:2), honey:mannitol 1:1 (H:MN 1:1), honey:mannitol 1:2 (H:MN 1:2) powder samples.

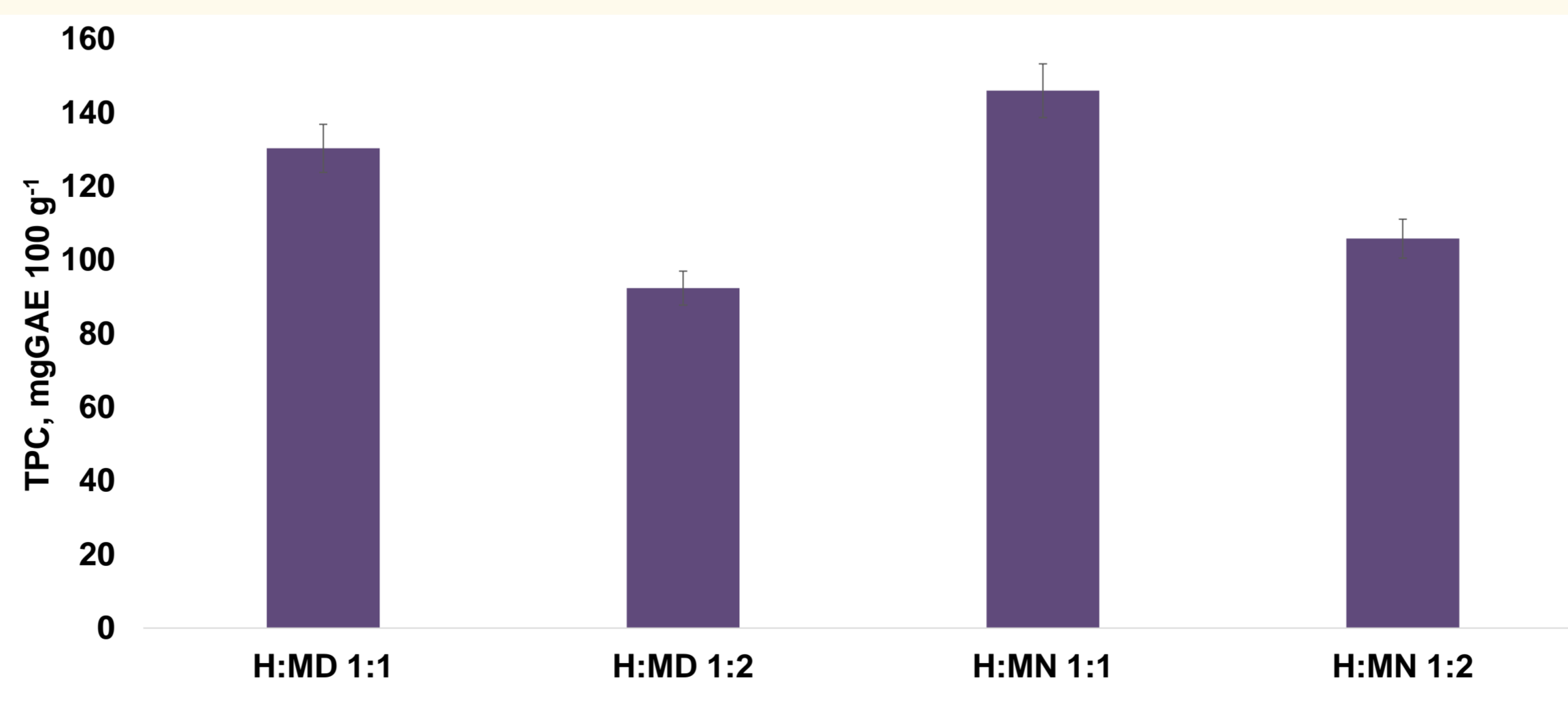


Figure 3. Total phenolic content in honey:maltodextrin 1:1 (H:MD 1:1), honey:maltodextrin 1:2 (H:MD 1:2), honey:mannitol 1:1 (H:MN 1:1), honey:mannitol 1:2 (H:MN 1:2) powder samples.

Conclusions

- Freeze-drying method could be used as an alternative drying method for obtaining honey powder.
- The content of total phenolic compounds and antiradical activity in the prepared honey powders depend on honey content in the experimental formulations. The used carriers did not significantly ($p < 0.05$) influence the values of examined parameters.

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