



# Marshmallow root extract and honey: cough relief through mucoprotection

Tobias Mück, PhD

The experimental study investigated the bioadhesive properties of cough syrups containing partial fractions of plant extracts with or without added honey. The study authors established that addition of honey prolonged adhesion time on the mucosa in the model, thereby improving the physicochemical relief of irritation. As an additional soothing action, the tested syrups also reduced mucosal permeability to noxious substances and here too, the addition of honey contributed to the overall effect.

Patients with upper respiratory tract infections and troublesome coughs often seek advice in the pharmacy. Herbal preparations play an important role in self-medication. An in-vitro study has now illustrated the bioadhesive and mucoprotective properties of preparations containing marshmallow root extract.

An infection of the upper respiratory tract is often accompanied by a cough. Bacteria or viruses lead to inflammatory processes in the mucosa and cause hypersensitivity of the cough reflex. The protective properties of natural ingredients can be utilised to heal the irritated mucous membrane: Polysaccharides form a tenacious protective film on the mucosa and so enable it to regenerate.

The retention time of the physical-chemical barrier on the mucosa is of key importance for this protective function. The authors of a study published in the German “Zeitschrift für Phytotherapie” carried out an experiment to determine how long a cough syrup based on dried extract of marshmallow root and honey adhered to the mucosa [1].

A cough syrup containing dried extract of marshmallow root and pure bee’s honey (medical grade honey) and an extract of *Althaea officinalis* as the sole active substance were tested. The adhesive properties of syrup and extract were compared with those of artificial saliva using an established model of a mucous membrane. The length of fluid left behind on an inclined plane after two minutes was measured.

In the study, the preparation containing honey showed a significantly longer retention time on the mucous membrane than the preparation without honey. Both the syrup as well as

the pure extract showed a reduced speed of runoff compared with the artificial saliva.

The authors of the study also investigated the effects of the mechanical barrier produced by mucopolysaccharides on the permeation of irritant noxious substances (the study used caffeine) through the buccal mucosa. Three syrups were tested:

- Syrup with the ingredients marshmallow root and bee’s honey,
- Syrup with marshmallow root,
- Syrup based on a mucopolysaccharide fraction from ribwort, a flavonoid fraction from thyme, and bee’s honey.

The Franz diffusion cell used as the study model showed that all three preparations significantly reduced the permeation of caffeine by 70 to 90%. This experiment also showed that honey had a positive impact on the overall effect.

## Summary

The barrier effect produced by mucopolysaccharides reduces mucosal irritation and leads to a soothing of coughs associated with colds. The study authors found it noteworthy that the formulation of the preparation as well as the combination with pure bee’s honey had a significant role in the overall effect.

## Literature

1. Appel K. et al. Zu den bioadhäsiven Eigenschaften der Eibischwurzel *Althaea officinalis* L. radix. ZPT – Zeitschrift für Phytotherapie. 2018;39:1–7.

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