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The therapeutical properties of honey have been known since the early history of beekeeping. The various mechanisms for the therapeutical properties of honey are far from well known, however one suggested trait has been linked to the presence of antibacterial microorganisms in honey. However, the mechanisms of antibacterial activities are far from well explored. Further, considering the increasing global spread of antibiotic resistance, it is also necessary to explore if antibiotic resistance can be detected in honey and/or its microbes. So far, few studies have been performed to explore antibiotic resistance in honey.

In this study, we have screened a large amount of honey samples from different parts of Sweden, and a selected amount of honey samples from other countries in Fennoscandinavia, EU and outside EU. We employed a three step strategy: i) screening of lytic properties of honey on prokaryotic and eukaryotic cells embedded in solid agar media; ii) screening of inhibition on agar media with different types of antibiotics (natural compounds, anthropogenic compounds) at different concentrations; iii) isolation and identification of microbes from a selected amount of honey samples. Different kinds of controls were used, such as heat treated honey, artificial sugar solutions, "fake honey" and maple syrup. A selection of these honey samples were characterized further with regard to chemical composition, floral origin (pollen analyses), and molecular biology.

In summary, antibacterial properties could be observed in a relatively large proportion of the studied honey samples. Further, antibiotic resistance could also be observed in a smaller amount of the studied honey samples. These differences may be attributed to the geographical origin and the environmental conditions of the honey. However, the mechanisms for these differences need to be explored further by systems biological based methods.