Enhancing the Bioactivity of Honey by the Medicinal Plant (*Ocimum basilicum*)

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Abstract

The principal objective of this project was to improve the effectiveness of honey by combining its medicinal properties with the medicinal plant (*Ocimum basilicum*).

Gas Chromatogram Mass Spectrometry (GC/MS) was used to identify and investigate the compounds responsible for *Ocimum basilicum* antibacterial and antioxidant activity. These bioactive compounds were studied in the plant and later on in the honey produced from it. The main idea was that if the antioxidant, antimicrobial or other properties combined in the honey it would be a natural alternative to commercial drugs in the market. As recently the indiscriminate uses of the antibiotics, for example, have developed resistances against many antimicrobial drugs which have been used to treat infectious diseases for many years. The results of the honey volatile compounds confirmed that the bioactive compounds transferred from the medicinal plant into honey. Moreover, the examination of the antimicrobial and antioxidant activates of the honey showed similar properties to other honeys, but better activity combining both medicinal plant and honey bioactivity. This final result is confirming the possibility of using *Ocimum basilicum* honey as antimicrobial agent especially with increasing microbial resistance to many antibiotics. In addition, use it as an antioxidant agent for the prevention of many diseases such as Alzheimer's disease, cardiovascular diseases, cancers and inflammatory diseases.

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