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HONEY CHEMICAL COMPOSITION: IMPLICATIONS FOR QUALITY, AUTHENTICITY, AND BIOACTIVE PROPERTIES - A REVIEW

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Honey is a natural product characterized by a complex chemical composition that varies according to its botanical and geographical origin, climatic conditions, processing, and storage. In addition to water and sugars, honey contains a wide range of bioactive compounds, including organic acids, enzymes, vitamins, minerals, phenolic compounds, and flavonoids, which contribute to its physicochemical characteristics and biological properties. Its antioxidant and potential anti-inflammatory effects have attracted considerable scientific interest, while increasing concerns regarding adulteration have highlighted the importance of reliable methods for assessing honey quality and authenticity. The aim of this review is to provide an overview of the chemical composition of honey and to examine the relationships between its physicochemical characteristics, botanical and geographical origin, quality, authenticity, and bioactive properties. Particular attention is given to the major chemical constituents of honey, their variability among different honey types, and their relevance to quality assessment and the identification of adulteration. In conclusion, the chemical composition of honey represents an important basis for evaluating its quality, verifying its authenticity, and characterizing its bioactive potential. A comprehensive understanding of the factors influencing honey composition, together with the application of appropriate analytical approaches, can support the identification of adulterated products, improve quality control, and strengthen consumer confidence. Further research is needed to clarify the relationships between specific chemical constituents and the biological effects of different honey varieties.
Keywords: *honey, chemical composition, bioactive compounds, biological implications*

