

## Determination of melittin in several honeybee venom powder samples by HPLC

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**Background and Aims:** The effects of honeybee venom therapy have been known since prehistoric times. It has been found to have a marked effect on variety of diseases, including arthritis, angiocardopathy, back pain, musculoskeletal pain, cancerous tumors, anticancer, and multiple sclerosis the immune system, cardiovascular system. It is a typical representative of biologically active peptide drugs with high therapeutic potential. Bee venom contains a complex mixture of biologically active agents, such as peptides, enzymes, biogenic amines, etc. The main components of Bee venom are enzymes: phospholipase A2 (12-15%), hyaluronidase (1-3%), peptides: melittin (approx. 50%), mast cell degranulating (MCD) peptide (2%), apamin, and promelittin. The aim of the study was to survey the amount of melittin as major compound in several honeybee venom dried samples by reverse-phase high-performance liquid chromatography (RP-HPLC).

**Methods:** A HPLC method with photodiode array (PDA) detector was used for determination of melittin and in crude honeybee venom dried powder as the traditional medicine possessing specific biological activity. Melittin of samples was extracted with deionised water followed by HPLC-PDA analysis on a C18 column of Europa Protein with water and acetonitrile containing 0.1% TFA as mobile phase under gradient elution at 220 nm.

**Results:** In this study, by applying this methodology the difference in melittin content of honeybee venom samples was evaluated. The melittin amount ranged from 8.2 to 51.3%. The reason of difference in melittin contents between samples can be probably due to different origin of samples, the use of different sampling methods and drying and maintain conditions.

**Conclusions:** HPLC analysis revealed a considerable difference in melittin of honeybee venom powdered samples. The findings showed that one of the samples is standard and the rest samples have to be subjected to further purification process.

**Keywords:** Honeybee venom; Melittin; HPLC