



**Scanning Electron Microscopy (SEM) Technique on Honey Bee (*Apis mellifera*)  
Taxonomic Studies  
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**Abstract**

Taxonomic zoology, a sub-discipline of biology, encompasses the rules governing the classification of animals and integrates insights from various scientific fields. While traditional taxonomy relies primarily on morphological character analysis, modern approaches incorporate geometric morphometrics, population genetics, molecular biology, and bioinformatics. Currently, honey bee diversity is represented by more than 29 subspecies, although this number is still controversial among researchers. Micro-diversity in diagnostic characters within honey bees have often been overlooked. From this perspective, SEM offers a rapid analytical method for distinguishing between subspecies or ecotypes. This study aims to assess the applicability of SEM morphological analysis in characterizing honey bee biodiversity. Specifically, it evaluates the maxillary palpus segment as a supporting character for both classical and modern taxonomic methodologies.

**Keywords:** SEM, *Apis mellifera*, Biodiversity, Maxillary palpus, Morphology

