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HEAVY METAL CONCENTRATIONS IN SOUTH AFRICAN POLLINATORS: *Apis Mellifera Capensis* AS A CASE STUDY

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ABSTRACT

Pollinators are important for the functioning of almost all terrestrial ecosystems globally through plant reproduction and productivity. Generalist pollinators like honeybees have been used as an indicator to assess pollution, mostly in the global north. Honeybees in South Africa are interchangeable between managed and natural colonies and the effects of heavy metals on native honeybee populations in South Africa are largely unknown. Bees are potentially good biological indicators as they have considerable, systematized colonies with diverse feeding habits and ephemeral lifespans that are sensitive to environmental change. Unlike other pollutants, metals do not degrade, but can accumulate. This is discussed in relation to positive and negative influences. Bees are thus of environmental and economic importance, as pollutants could have negative impacts ecologically as well as economically. The objective of this study is to firstly determine heavy metal contamination of pollen, honeybees, beehives, and honey of the Cape honeybee, *Apis mellifera capensis*, and secondly, evaluate the potential of *Apis mellifera capensis* to act as biological indicators of environmental pollution. The methods include comparing apiaries placed at sites (within the fynbos biome) representing, agricultural, urban, and natural areas. Heavy metals will be detected from foraging bees via atomic absorption spectroscopy. Representative plant species will be gathered on site and pollen viability tested using the TTC method. Fresh honey samples from the same hives will be assessed through mineralization methods.