

P124. THE EFFECTS OF INDUSTRIAL TOXIC EXPOSURES PROXIMITY ON THE DEVELOPMENT OF HONEYBEE COLONIES AND HONEY CONTENT

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Environmental pollution has been increasing parallelly to technologic and industrial innovations, which is a vital environmental issue that has negative impacts on living organisms. The aim of the present study was to determine how the local area, the region inhabited by bee colonies during the beekeeping season (summer), affects regional efficiency, the foraging behaviour of colony worker bees, colony survivability, and the content of certain heavy metals in honey. Bee colonies from the same genetic source in different regions demonstrated significant variation ($P<0.001$) in behaviour and performance. Initially, the number of forager worker bees exiting and entering the hive was approximately the same in all regions. However, over time a significant difference ($P<0.001$) emerged between regions. Varying regional conditions caused considerable differences ($P<0.001$) in the average honey yields of colonies (between 28.60 ± 3.27 and 0.571 ± 2.76 kg/colony). Significant differences ($P<0.01$) in the amount of wax produced were also observed between regions. These regional differences were further reflected in concentrations of certain heavy metals (Fe, Ni, Cu, Zn, Cd, Pb and Co) in honey samples.

Consequently, it can be said that environmental effects were determined to be the most important reason for the differences in all phenotypes, such as behaviour, honey yield and heavy metal concentrations in honey. On the other hand, it also seen that although these analysis results are in low levels of heavy metals, it has unfolded the risks of environmental pollution to honeybee population. Therefore, colonies are only productive when provided with appropriate environments or conditions.

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