

**Comparison of Biological Diversity Parameters at Apple Orchards**

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**Aim of the study:** Aim of this study was to find out dissimilarities of insect diversity in different type of apple orchards that were managed by organic farming and conventional farming. On the other hand, investigation whether pesticide application decrease and/or negatively affect to insect biological diversity or not. For this purpose Carabid beetles were sampled from four apple orchards and their data were evaluated by diversity index.

**Material and Methods:** This study was carried out in Isparta province (Turkey) in 2016. Four apple agro-ecosystems were chosen. Two of them were managed by organic farming (without chemical application) and the rest were managed by conventional farming (with pesticide application). Pitfall traps were used for sampling Carabidae family members. Totally 40 pitfall traps were set up in four apple orchards. EvenDiv program was used for calculation of biological diversity indexes including diversity, dominance, evenness, and similarity.

**Results:** Insect species richness was found higher on apple orchards that managed by organic farming than pesticides applied apple orchard. Both Shannon-Wiener and Simpson diversity indexes were measured lower in the garden where chemical applied while, as expected, dominance that is opposite of diversity were calculated higher. Shannon Evenness index showed that population dynamic of insect species were more balanced in apple orchards, managed by organic farming. According to similarity index (Sørensen); pesticide applied and not applied apple orchards resembled each other. The result of this study showed that applied chemical on the agro-ecosystems decreasing insect species richness therefore insect diversity.

**Keywords:** Carabidae, Shannon-Wiener, Simpson, Sørensen, Evenness, pesticide application, organic farming, Isparta, Turkey.