

Using Lactic Acid Bacteria as an Alternative Tool to Improve Honey Bee Health

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Following China, Turkey is these condcountry in the world's honey production with about 7.5 million hives. As of 2016 in Turkey(a genetic center of 20% of world bee genotypes, among which *Apismelliferas sp* .are in very important concern), honey average per hive is 14 kg. Although our country has such rich diversity in bee populations and vegetation, it has not reached the desired level in the production of bee products because of bee diseases caused especially by pathogens such as *Nosema sp*. Rather than the use of traditional methods including the use of antibiotics, alternative options such as the use of Lactic Acid Bacteria (LAB) isolated from bee gastrointestinal system, showing probiotic properties are gaining importance. Therefore, it is the aim of this study to isolate and characterize the beneficial LAB from gut microbiota of honey bees(*Apismellifera*) collected from different hives in Hatay and Ankara provinces, evaluate their probiotic properties and effect on honey bee health against *Nosema* infection. So far, in our on going studies, we were able to cultivate and characterize different LAB strains from gut and identified them by 16S rDNA sequencing. We are currently testing the probiotic properties of selected strains and testing their effects on *Nosema*-infected honey bee samples by counting *Nosemaspores* in gut. The strains causing reduction in infection will be further used in microbiota analysis by next generation sequencing and in product development. As far as the results obtained so far are concerned, it seems promising to use honey bee gut isolated LAB as an alternative option to treat honey bee diseases.

Biography:

Ozlem Osmanagaoglu graduated from the Biology Department of Middle East Technical University in Turkey. Later, she completed her master and PhD program on genetics of Lactic Acid Bacteria at the Biotechnology Institute of METU. During her doctoral and post doctoral periods, she had worked under NATO grant and scholarship in the University of Wyoming, USA. Presently, she is a member of the Biology Department within the Science Faculty of Ankara University in Turkey where she have established Microbial Genetics Laboratory with a young productive research team. Her work has focused on bacteriocins, natural antimicrobial peptides, produced by Lactic Acid Bacteria, thei r molecular typing and probiotics.