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Nucleotide Diversity and Bacterial Endosymbionts of the Black Cherry Aphid Myzus cerasi (Fabricus, 1775) (Hemiptera: Aphididae) from Turkey

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Abstract : Sequences of mitochondrial cytochrome oxidase I (COI) gene of twenty-five Turkish and one Greek Myzus cerasi (Fabricus) (Hemiptera: Aphididae) in populations were collected from Prunus avium and Prunus cerasus. The partial coding region of COI studied is 605 bp for all the populations, from which 565 nucleotides were conserved, 40 were variable, 37 were singleton, and 3 sites were parsimony-informative. Four haplotypes were identified based on nucleotide substitutions, and the mean of intraspecific divergence was calculated to be 0.3%. Phylogenetic trees were constructed using Maximum Likelihood, Minimum Evolution, Neighbor-joining, and Unweighed Pair Group Method of Arithmetic Averages (UPGMA) and Myzus persicae (Sulzer) and Myzus borealis Ossiannilson were included as outgroups. The population of M. cerasi from Isparta diverged from the rest of the groups and formed a clade (Haplotype B) with Myzus borealis. The rest of the haplotype diversity includes Haplotype A and Haplotype C with individuals characterized as Myzus cerasi pruniavium and Haplotype D with Myzus cerasi cerasi. M. cerasi diverge into two subspecies and it must be reevaluated whether this pest is monophagous or oligophagous in terms of plant type dependence. The obligated endosymbiont Buchnera aphidicola was also found during this research, but no facultative symbionts could be found. It is expected further studies will be required for a complete barcoding and diversity of bacterial endosymbionts present.

Keywords : bacterial endosymbionts, barcoding, black cherry aphid, nucleotide diversity
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