Molecular markers for *Psocoptera* species identification

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Abstract

The genus *Liposcelis* (Psocoptera: Liposcelididae) is commonly associated with stored products all over the world. Species identification is not an easy task because most psocids are very small and morphologically similar. In this study we examined partial cox1 gene sequences (COI) as barcodes and AFLP (Amplified Fragment Length Polymorphism) markers for psocid species characterization and distinction. About 30 specimens of males and females of each of the following species were analyzed: *Liposcelis bostrychophila*, *L. brunnea*, *L. corrodens*, *L. entomophila*, *L. fusciceps*, *L. paeta*, *L. pearmani*, and *L. rufa*. DNA extraction followed the standard protocol from the Qiagen DNeasy tissue extraction kit. DNA quantification by nanodrop was between 60 and 200 ng of DNA. A good PCR amplification was obtained by both techniques. The primers used for COI were HCO and LCO; for AFLP we used the dominant markers FAM, NED, and JOE. After the selective amplification, the DNA sequences and fragments were analyzed. The sequences of COI are still being studied and will be deposited in the GenBank. The AFLP markers grouped the species in the same subgroups formed by morphological characters. We concluded that both molecular techniques represent useful tools for the identification and distinction of psocid species.

Keywords: AFLP, Liposcelididae, Psocids, Stored-product pests.

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