Still on the way: the molecular identification of stored-product psocids

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Abstract

Stored-product psocids are regarded as economically important insect pests and could be spread widely through human pathways among different continents. Rapid and correct identification is important for the monitoring, control and quarantine of stored-product psocids. Molecular techniques overcome the limits of morphological identification, especially for the non-adult and non-complete samples of insect pests. In the last 10 years, the molecular identification of stored-product psocids has been studied through international collaborations including scientists from China, Czech Republic, the United States, Croatia, Australia and Pakistan. This report presents a review of the applications of molecular techniques of common species identification of stored psocids, including DNA sequence analysis (such as 16S rDNA, ITS2 rDNA, and mtDNA COI), species specific primer tests, and gene chip tests. Although most species of stored-product psocids are able to be identified effectively through the above molecular techniques, more research is needed, especially through international collaborations.

Keywords: stored psocids, molecular identification, 16S rDNA, ITS2 rDNA, mtDNA COI