Title Proteomic assessment of resistance to the fumigant phosphine in the lesser grain borer, Rhyzopertha dominica (F.)

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Abstract

A previous publication compared a strain of the stored-grain pest beetle, *Rhyzopertha dominica*, resistant to the fumigant phosphine, with a susceptible strain using two-dimensional polyacrylamide gel electrophoresis. Certain proteins appeared to differ and the authors proposed that arginine kinase in particular might be used as a marker for the rapid monitoring of resistance in this species and other pests of stored grain. Here an expanded set of susceptible and resistant strains is surveyed using the two-dimensional fluorescence difference gel electrophoresis (2D-DIGE) system. Of hundreds of spots only two showed a significant difference between the resistant and susceptible strains and the magnitudes of those differences were less than three-fold. Arginine kinase spots were identified but they did not differ significantly. The proposal that certain abundant proteins of *R. dominica* might be used as markers of phosphine resistance was not supported by the present study.