

Title Differential natural performance of four *Cheyletus predatory* mite species in Czech grain stores

Author J. Lukáš, V. Stejskal, V. Jarošík, J. Hubert and E. Žd'árková

Citation Journal of Stored Products Research, Volume 43, Issue 1, 2007, Pages 97-102

Keywords Storage; Grain; Infestation; Predatory mites; *Cheyletus*; *Acari*; Predator–prey interactions

Abstract

Out of four *Cheyletus* species occurring in grain stores in Central Europe, only *C. eruditus* is employed for the biocontrol of stored-pest arthropods. Unlike laboratory test data, field data on the differential natural performance (measured as frequency, abundance and predator-to-prey density dependence) of various species of *Cheyletus* spp. are not available. Therefore we investigated the relations between population densities of pest mites (Acari: Acaridida) and *Cheyletus* spp. predatory mites (Acari: Cheyletidae) in 147 grain stores in the Czech Republic. More than 1,000,000 individual pest mites and 40,000 individual predatory mites were extracted. We found that 29% of samples did not contain mites, 41% contained only pest mites, 4% only predatory mites, and in 26% both groups occurred simultaneously. Most abundant of the predatory mites were *C. eruditus* (79%) followed by “minor” species; *C. aversor* (10%), *C. trouessarti* (9%) and *C. malaccensis* (2%). There was a significant positive correlation between the occurrence and population density of the predatory and pest mites, except for *C. malaccensis*. Our results revealed *C. eruditus* as the mite predator with the highest natural performance in the field, indicating that it was the most pre-adapted species for biocontrol in central European grain stores.