GENETIC DIFFERENCES AMONG SIBLING SPECIES OF THE SUBGENUS *DIMOCKATAX* (ACARI: UNIONICOLIDAE: *UNIONICOLA*): HETEROGENEITY IN DNA SEQUENCE DATA SUPPORTS MORPHOLOGICAL DIFFERENTIATION

Brian R. Ernsting[1], Dale D. Edwards[1], Malcolm F. Vidrine[2] and Han Cun[3]

1. Department of Biology, University of Evansville, Evansville, IN 47722, USA; 2. Division of Sciences and Mathematics, Louisiana State University at Eunice, Eunice, LA 70535; 3. Division of Biology and Medicine, Brown University, Providence, RI, 02912 (email: be6@evansville.edu).

ABSTRACT - Water mites of the subgenus *Dimockatax* (Unionicolidae: *Unionicola*) are common inhabitants of anodontine bivalve molluscs. Morphological differences among the five species that comprise the subgenus are minor and based primarily on subtle differences in one or two characters. The newly described species *Unionicola ernstingi* (Edwards *et al*., 2008) is distinguished from its sibling species *U. tumida* (Wolcott, 1898) by the number of clawlets on the tarsus of the pedipalps. These mites have been reported from the same locality, although they inhabit distinct species of host mussels. *Unionicola ernstingi* occurs with *Anodontoides radiatus* (Conrad, 1834), and *U. tumida* is found in association with *Strophitus subvexus* (Conrad, 1834). Taxonomic delineations among *Unionicola* mussel-mites parasitizing different species of hosts have, however, been challenged by the suggestion that morphological differences between mites may be influenced by the host species in which they metamorphosed. To test the validity of the species status for *Dimockatax* mites from *A. radiatus* and *S. subvexus,* heterogeneity in sequence data of the *cox1* gene was examined. A comparison of *cox1* sequences for *U. tumida* from *S. subvexus* and *U. ernstingi* from *A. radiatus* revealed a high degree of differentiation (12.7%). The genetic differences observed for *U. ernstingi* and *U. tumida* are consistent with those observed for other closely related, yet morphologically distinct species of *Unionicola* reported from different species of host mussel and thus complement morphological data recognizing them as valid species.

Internat. J. Acarol. 34(4): 403-407.