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A new genus and species of Cheyletidae (Acariformes: Prostigmata) from citrus trees in Florida

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Abstract

A new genus and species, *Lanceacheyla whartoni* (Acariformes: Prostigmata: Cheyletidae) is described for the female, male, and teleonymph. All mites were collected from leaves of 'Hamlin' orange trees in Florida, U.S.A. Affinities of the new genus within Cheyletidae are discussed.

Key words: Cheyletidae, *Lanceacheyla*, new genus, new species

Introduction

The family Cheyletidae Leach (Acariformes: Prostigmata) is quite diverse, both taxonomically and ecologically (including free living predators, parasites of vertebrates, and obligate associates of invertebrates). Volgin (1969, 1987) recognized 10 tribes and 54 genera, Summers and Price (1970) listed 50 genera and close to 190 species, and Gerson *et al.* (1999) listed a total of 76 genera and more than 400 species. Bochkov and Fain (2001) presented the first phylogenetic analysis of intrafamilial relationships, which largely confirmed Volgin's classification. These authors recognized 72 valid genera for the family. Currently, the Cheyletidae includes about 370 species belonging to 73 genera (Bochkov 2004).

A series of surveys and field assessments of soft pesticide programs intended to minimize pest mite populations and to optimize beneficial mites on Florida citrus were conducted between 1991 and 2004 (Childers *et al.*, unpublished data). As a result of these studies, we obtained a number of Cheyletidae that could not be assigned to any existing genus. The material included females, males, and nymphs, thus allowing description of multiple instars, and proper delineation of differences among instars. The goal of this study is to describe a new genus to accommodate these specimens. Affinities of this new genus are explored in the context of the Bochkov and Fain (2001) study.

Material and methods

The nomenclature of the idiosomal and leg setae follows Grandjean (1939, 1944), as implemented by Bochkov *et al.* (2008).

Illustrations were prepared starting with pencil drawings using a drawing tube on a Zeiss Axioskop™ compound microscope. Final processing was done in Adobe Photoshop™ (Adobe Systems Incorporated, San Jose, California) based on scans of inked images. Measurements were taken using an ocular micrometer, and are presented in micrometers (μm) in the format holotype (average; range) for the female or average (range) for the nymphs.

The second nymphal instar in Cheyletidae may be homologous to the ancestral deutonymph but this point is still unclear. We therefore prefer to retain the term teleonymph to designate this instar.

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