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Article

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Phytoptus atherodes sp. n. (Acari: Eriophyoidea: Phytoptidae) and a supplementary description of *Phytoptus hirtae* Roivainen 1950 from sedges (Cyperaceae)

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Abstract

A new species, *Phytoptus atherodes*, an eriophyoid mite found on *Carex atherodes* Spreng. in North-West Russia, is described and a supplementary description of the poorly known species, *Phytoptus hirtae* Roivainen 1950, from *Carex hirta* L. is given. *P. atherodes* **sp. n.** has deutogyne and protogyne females which differ in the length of the body, prodorsal shield, setae *v*, *φ* and *c1*; the number of dorsal annuli and length and number of empodial rays. Variability of empodial ray numbers among summer (protogyne) and winter (deutogyne) females of *P. atherodes* **sp. n.** and *P. hirtae* was studied for the first time and may reflect different stages of evolution within the genus *Phytoptus*.

Key words: Prostigmata, Phytoptidae, deuterogeny, eriophyoid mites, sedge, empodium, monocots

Introduction

The eriophyoid mite genus *Phytoptus* Dujardin 1851 is the largest taxon of the relict subfamily Phytoptinae Murray 1877 and includes about 40 species (Amrine *et al.* 2003) living on angiosperms that are distributed mainly in Holarctic regions (Oldfield 1996; Chetverikov *et al.* 2009). Species in this genus possess a worm-like body, an equally annulated opisthosoma and are characterized by the presence of plesiomorphic characters such as having long spermathecal tubes and the retention of external vertical setae *ve* (s.d.1), subdorsal seta *c1* (s.sd.) and tibial solenidion *φ*. The most ancient part of the genus *Phytoptus* is represented by mites inhabiting sedges (group "*caricis*"), whereas the more derived and secondarily changed forms (group "*avellanae*") are found living on dicots. In comparison to mites from the group "*avellanae*", those from the "*caricis*" group are larger in size, have longer *c1* setae, twice the number of annuli at the rear (based on Keifer's (1969, p.23) telosomal rings), an obligate tibial solenidion I and asymmetrical empodia with more numerous rays (Smith 1977; Sukhareva 1994; Chetverikov *et al.* 2009).

Along with species of the genera *Pentasetacus* Schliesske 1985 and *Trisetacus* Keifer 1952 from conifers, members of the genus *Phytoptus* from sedges are considered to be closest to the ancestral forms which gave rise to the monophyletic group, Eriophyoidea (Sukhareva 1994; Lindquist 1996a; Bagnjuk *et al.* 1998). In comparison, species of *Trisetacus* have been investigated quite completely (Smith 1984; Bagnjuk *et al.* 1995; Shevchenko 1997; Castagnoli 1996; Castagnoli *et al.* 2010) whereas mites of the genus *Phytoptus*, are poorly known. Currently, it is necessary to make a revision of the genus *Phytoptus* and it is reasonable to do this based on the following steps: 1) to redescribe some species from the group "*caricis*" and investigate their morphological variability; 2) to revise the group "*avellanae*"; 3) to study the peculiarities of postembryonic development in *Phytoptus* spp.; 4) to summarise the data concerning the genus *Phytoptus* and reveal the main lines of evolution within it by taking into consideration its ancient association with higher taxa of the Magnoliophyta (Sukhareva 1994; Chetverikov *et al.* 2009; Chetverikov 2010).

Since 2000, I have collected mites of the genus *Phytoptus* from sedges in Russia and the Ukraine with the prospect of a future revision of this genus. Up until now, more than 3000 specimens on about 250 slides are represented

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