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The potato pest *Russelliana solanicola* Tuthill (Hemiptera: Psylloidea): taxonomy and host-plant patterns

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Abstract

The Neotropical jumping plant-louse *Russelliana solanicola* Tuthill is a potato pest and a probable vector of plant pathogens. Populations morphologically similar to those found on potatoes have been collected on plants of at least ten different families, four of which have been confirmed as hosts by the presence of immatures. This suggests that *R. solanicola* is either a single polyphagous species or a complex of closely related, monophagous species (host races/cryptic species). Results of our analyses of multiple morphometric characters show for both sexes a grouping of the populations of *R. solanicola* and a clear separation of the latter from other *Russelliana* species. On the other hand, within *R. solanicola*, there is an overlap of populations from different host-plants as well as from different geographical regions. The results of the present study strongly suggest that *R. solanicola* is a single, polyphagous species and the known distribution indicates that it is native to the Andes. It is likely that *R. solanicola* has been introduced into eastern Argentina, Brazil and Uruguay. The polyphagy together with the ability to disperse and transmit plant pathogens potentially make this species an economically important pest of potato and other crop species.

Key words: psyllids, polyphagy, host races, cryptic species, Solanaceae, vector of plant pathogens, multivariate analysis, CAP

Introduction

The South American psyllid *Russelliana solanicola* Tuthill (Figs. 1A, B) was described from specimens collected in Peru on potato plants (*Solanum tuberosum*, Solanaceae) where they occurred in epidemic numbers and caused serious damage. Potato plants damaged by *R. solanicola* have also been reported from Chile (Artigas 1994). Other specimens collected in Peru, including the holotype, were found on *Datura* sp. (Solanaceae) (Tuthill 1959). Artigas (1994) listed *Datura* sp., sunflower, barley and wheat as additional host-plants, however, a source for these records was not provided. Chávez *et al.* (2003) listed 12 psyllid associated plant species, including *S. tuberosum*, from the families of Asteraceae and Solanaceae as well as reported *R. solanicola* as a serious pest on potatoes in Peru since 1996. The geographic distribution of *R. solanicola* is Andean (central and western Argentina, Bolivia, Chile and Peru) (Burckhardt 1987a) but there are also records from eastern Argentina, Brazil and Uruguay (Burckhardt 1987a; Burckhardt & Queiroz 2012). *R. solanicola* has been reported as a vector of the not yet fully identified virus SB26/29 causing 'Potato Yellows' (Chávez *et al.* 2003; Tenorio *et al.* 2003; Salazar 2006). The potato yellows virus causes severe damage to potatoes in Peru and a previous study has suggested a strong correlation between virus infected psyllids and potato yield reduction (Chávez *et al.* 2003). Future studies are needed to confirm *R. solanicola* as a potato yellows vector with a molecular methodology so that fastidious prokaryotes such as

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