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Toward the identification of *Frankliniella* species in Brazil (Thysanoptera, Thripidae)

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Abstract

This paper provides an illustrated key to about 40 species of *Frankliniella* recorded from Brazil, together with notes about each species. Two new synonyms are established: *Frankliniella longispinosa* Moulton is a synonym of *Frankliniella varipes* Moulton; *Frankliniella rodeos* Moulton is a synonym of *Frankliniella gemina* Bagnall, all described originally from South America. One new species is described, *Frankliniella graminis* **sp.n.** is recorded from Poaceae in central and southeastern Brazil. Four species are newly recorded from Brazil: *Frankliniella frumenti* Moulton, *Frankliniella gossypiana* (Hood), *Frankliniella musaeperda* Hood and *Frankliniella platensis* De Santis.

Key words: Diversity, identification, Neotropics, pests, taxonomy, tospovirus

Introduction

With over 230 described species, *Frankliniella* is the third most species-rich genus in the insect Order Thysanoptera (Mound 2011). In contrast to the members of the other two large genera, *Liothrips* and *Thrips*, the species of *Frankliniella* are almost entirely from the Americas, with most of the species being confined to the Neotropics (Mound & Marullo 1996).

One species, *Fr. occidentalis*, has been introduced throughout the world and is a major pest of many crops (Kirk & Terry 2003), but several other members of the genus such as *fusca* and *schultzei*, are also pestiferous although usually in more restricted areas (see Hoddle *et al.* 2008). Recognising such pest species against the spectrum of native species is particularly difficult in South America, both for technical and biological reasons. By technical problems we mean the fact that so many species have been described inadequately, with no real host-plant data, and from very few specimens that are often mounted onto microscope slides in an unsatisfactory condition for critical observations. As in all branches of science, conclusions in taxonomy can be no more reliable than the data on which they are based. Statements concerning the presence or absence of a pair of setae, if based on examination of a single *specimen*, may not be valid for that *species* when further samples are examined. There have been no studies on any of these South American species to establish the variation within and between populations, such as that induced on colour and structure by different seasons and environmental conditions. By biological problems we refer to the fact that, in contrast to species of genus *Thrips*, many species of *Frankliniella* seem to have no single distinctive character. Thus the most common species, *Fr. occidentalis*, can be distinguished only by using a range of characters, although the widespread pest form often has a distinctive abdominal colour pattern.

The only available comprehensive key to the species of *Frankliniella* aimed to distinguish almost 150 named species (Moulton 1948), but this is now more than half century out of date, both in its method of production and in its biological concepts. Some of the species in that key were included only from published descriptions, a particularly unreliable procedure. Moreover, several basal steps in the key used inappropriate characters, including body colour and world distribution. Adults of several species are known to vary in body colour, and newly emerged adults are commonly much paler than mature adults (see Mound & Nakahara 1994); this results in problems when

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