

Current status of the whitefly *Aleurodicus dispersus* as an invasive pest in the Cape Verde Islands

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INTRODUCTION

In the last three decades, the spiralling whitefly (*Aleurodicus dispersus*) has become an important international pest. The movement of plants and parts of plants (such as fruits) in international trade and tourism, and by natural dispersal, has favoured its introduction to new areas. In common with others whiteflies of economic importance, the immature and adult stages cause direct feeding damage by piercing and sucking of sap from foliage, and indirect damage following the accumulation all over host plants of honeydew and waxy flocculent material produced by the insects. Spiralling whitefly is a pest of tropical and subtropical crops, and highly polyphagous. Up to the 1970s, it had been recorded on 44 genera of plants, belonging to 26 botanical families (Mound & Halsey, 1978). This situation changed with the dispersal of the pest to new areas. Nowadays, the spiralling whitefly is one of the major pest of vegetable, ornamental and fruit crops around the globe (Lambkin, 1999). Important host crops include: banana (*Musa sapientum*), *Citrus* spp., coconut (*Cocos nucifera*), eggplant (*Solanum melanogena*), guava (*Psidium guajava*), *Hibiscus rosa sinensis*, Indian almond (*Terminalia catappa*), papaya (*Carica papaya*), *Rosa* sp. and tomato (*Lycopersicon esculentum*) (Saminathan & Jayaraj, 2001). Spiralling whitefly has its origin in the tropical Americas, including Brazil. Although the pest has been recorded only once in Brasil, in the 1920s in the state of Bahia (Bondar, 1923), it now has official quarantine status because of its economic importance. In the Cape Verde Islands, on the West African coast, the pest was initially introduced in the first half of 2000; it has since become established, reaching urban, natural and agricultural areas of the islands that constitute the archipelago. Since then, the pest has been causing damage to many native plants, ornamentals and cultivated food crops (Anon., 2001; Monteiro, 2004). The present study was done in order to produce an inventory of the most common host plants of spiralling whitefly in this new habitat.

MATERIALS & METHODS

The host plant survey was done from March 2003 to February 2004, in the two most important islands of the Cape Verde archipelago (Santiago and Santo Antão), where agriculture is of importance and where there is considerable biological diversity. Whitefly infestation levels were also recorded on leaves of the host plants; plants were considered 'heavily infested' when 10 or more individuals were present per cm². RAPD analysis was done, using six random primers, to compare the molecular diversity among the various whitefly populations collected.

RESULTS & DISCUSSION

The main host plants recorded in the Cape Verde archipelago belonged to 64 botanical families, and included 205 species. Most species were in the families Euphorbiaceae (23%), Fabaceae (23%), Malvaceae (13%), Solanaceae (12%), Asteraceae (9%), Amarantaceae (8%) and Cucurbitaceae (7%).

The main hosts were *Acalypha wilkesiana* var. *musaica*, *Ageratum conyzoides*, banana, cassava (*Manihot esculenta*), castor (*Ricinus communis*), *Euphorbia pulcherrima*, guava, *H. rosa sinensis*, Indian almond, *Ipomoea batatas*, lima bean (*Phaseolus lunatus*), *Malvastrum cordifolium*, papaya, pigeon pea (*Cajanus cajan*), *Solanum nigrum* and *Solanum oleraceus*.

Among the native plants infested, nine were endemic: *Artemisia gorgonum*, *Campanula jacobea*, *Campilantus glabel*, *Echium hypertropicum*, *Echium stenosphon*, *Euphorbia tuckeyana*, *Kickxia bruneri*, *Nauplius daltoni* and *Policarpea gay*.

Approximately 80% of crops examined were affected by the pest, with losses varying from 10 to 100%. Some of the infested plant species recorded on the survey have previously been reported as hosts in other areas of the world.

Of the various plants examined, 45% had infestation densities greater than 10 individuals per cm²; these included *A. wilkesiana* var. *musaica*, banana, cassava, *E. pulcherrima*, *H. rosa sinensis*, *Hymenocallis senegambica*, *M. cordifolium*, papaya, *Parietaria debilis* and *S. nigrum*.

When compared with those of coconut whitefly (*Aleurodicus cocois*), the molecular profiles obtained for spiralling whitefly showed 18% similarity.

REFERENCES

- Anon. (2001). *Relatório Anual de Actividades do ano 2000*, Ministério de Agricultura, Alimentação e Ambiente Report, 31 pp.
- Bondar, G (1923). *Aleyrodideos do Brasil*. Bahia.
- Lambkin, T A (1999). A host list for *Aleurodicus dispersus* Russell (Hemiptera: Aleyrodidae) in Australia. *Australian Journal of Entomology* **38**, 373-376.
- Montiero, A H R R (2004). *Introdução de Aleurodicus dispersus* (Russell, 1965) (Hemiptera: Aleyrodidae), em Cabo Verde: caracterização molecular, faixa de hospedeiros e medidas fitossanitárias. Dissertação apresentada a Universidade de Brasília, Agosto de 2004.
- Mound, L A; Halsey, S H (1978). *Whitefly of the world. A systematic catalogue of the Aleyrodidae (Homoptera) with host plant and natural enemy data*. Chichester: John Wiley and Sons.
- Saminathan, V R; Jayaraj, S (2001). Weeds as hosts of the spiralling whitefly, *Aleurodicus dispersus* Russell (Homoptera: Aleyrodidae) around Madurai, Tamil Nadu. *Pest Management and Economic Zoology* **9**, 27-30.