## Revision of Delphacini (Hemiptera: Delphacidae: Delphacinae) present in Australia

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**Abstract**

Examination of delphacini holdings in Australian insect collections has revealed ten species previously not recorded from Australia. Australian records of *Dicranotropis fuscifrons* (Muir), the synonymising of *Gelastodelphax* with *Eumetopina* and the resurrection of *Hadeodelphax* have been rejected. An updated checklist of Australian Delphacini is provided. More than 120 species are represented in the collections, more than half of which appear to be new to science and many of these will require the erection of new genera to accommodate them. The fauna of Australia would still appear to be incompletely surveyed as many of these new species are represented by only one or two specimens or only by female specimens and relatively few specimens of any species have been collected in southern or inland regions.

## Within-species variability in chrysanthemum yellows (CY) transmission by *Euscelidius variegatus* Kirschbaum (Cicadellidae)

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Chrysanthemum yellows (CY) is a disease of several herbaceous crops (Conti *et al*., 1998) associated with phytoplasmas of genetic group 16Sr-IB (Candidatus *Phytoplasma asteris*) and transmitted by at least three species of *Deltocephalinae* leafhoppers (Palermo *et al*., 2001). In preliminary assays, a vector species, *Macrosteles quadripunctulatus* Kirschbaum, had 100% of CY transmission efficiency, and *Euscelidius variegatus*, transmitted with lower efficiency under the same conditions. Because individual differences in transmission capability can help to identify factors involved in interactions with phytoplasmas, CY transmission patterns of *E. variegatus* were analysed in detail.

**Methods and Materials**

Nymphs of *E. variegatus* were allowed to acquire CY from infected *Chrysanthemum carinatum* Schousboe plants (daisy) for one week, then transferred onto oat plants for two weeks and finally isolated singly on test daisy seedlings either for one inoculation access period (IAP) of one week or for serial transfers of 3-7 days until death.

About 100 leafhoppers that acquired CY under the conditions described above were singly isolated for a 48 h IAP inside Eppendorf tubes and allowed to feed through Parafilm on an artificial feeding medium.

One month after the transmission assays, total DNA was extracted from symptomless plants and the presence of CY was analysed by Real Time Polymerase Chain Reaction (RT-PCR). Some of the leafhoppers from transmission trials were sampled and singly analysed by direct, nested and RT-PCR for the presence of CY.

The presence of BEV, a bacterium associated with *E. variegatus* and known for its effect on phytoplasma transmission (Purcell and Suslow, 1987) has been checked by PCR on healthy leafhoppers from two colonies (Torino and Udine, Italy) and on both CY transmitter and non-transmitting individuals.

**Results**

Two sets of time-specific transmission experiments carried out with single leafhoppers serially transferred on daisy plants until death allowed the identification of 7 insects, out of 32 tested, that did not transmit CY throughout their whole life (~78% of transmitting and ~22% of non-transmitting individuals). These non-transmitting insects survived for a minimum of 41 days to a maximum of 125 days post acquisition.

Four sets of transmission experiments carried out with single leafhoppers that fed for 7-day IAP, allowed the identification of 182 transmitting and 52 non- transmitting leafhoppers (~78% of transmitting and ~22% of non-transmitting individuals).