Morphometric differentiation of *Tetramesa leucospae* Zerova & Madjdzadeh, 2005, populations associated with two geographically isolated grass species in Iran

(Hymenoptera: Eurytomidae)

Seyed Massoud Madjdzadeh, Hassan Ali Dawah, Mike Bruford

Abstract. Discriminant function and cluster analyses were performed on 19 morphometric variables of the head, thorax, propodeum, wing, antenna and leg to determine whether individuals of *Tetramesa* sp. are distinguishable from the morphologically similar *Tetramesa leucospae* Zerova & Madjdzadeh, 2005. The former was reared from the grass *Leucopoa pseudosclerophylla* (Krivot.), an endemic species in the alpine region of southern Iran, and the latter from *Festuca sclerophylla* (Boiss. Ex Bisch.) that is found on stony slopes in northern Iran. Our results showed significant differences between individuals of *Tetramesa* reared from these two geographically isolated grasses. A stepwise discriminant function analysis selected six morphological characters (distance between two top ocelli, length of compound eye, breadth of thorax, width of propodeal foramen, stigmal vein and tarsal segment 2 of hind leg) from which two characters (width of propodeal foramen and distance between two top ocelli) provided the greatest discrimination between these geographically isolated populations of *Tetramesa*. 84% of individuals were reclassified correctly into their original populations using these characters. A dendrogram of the cluster analysis based on data of squared Euclidean distances between *Tetramesa* showed two main branches, one that combined *Tetramesa* reared from *L. pseudosclerophylla* and the other that represented the individuals reared from *F. sclerophylla*. This analysis clearly implies that each host-associated population is restricted to one grass species. We therefore concluded that the two *Tetramesa* populations represent two host-adapted forms and we consider that they are an example of superficially cryptic allopatric speciation in insects.

Key words. Morphometrics, Hymenoptera, Eurytomidae, *Leucopoa*, *Festuca*, Poaceae, host-adapted variation, Iran.

Introduction

Parasitic Hymenoptera are very difficult to identify and classify because of their extremely uniform morphology, intraspecific variability and the presence of cryptic and sibling species (VILLEMANT et al. 2007). The larvae of *Tetramesa* are exclusively phytophagous and associated with grasses (Poaceae) (CLARIDGE 1961). Some species cause swelling, resulting in the growth of characteristic galls on the stem. Many species of *Tetramesa* have been regarded as major pests of cereals and range lands in North America (SPEARS & BARR 1985) and the former Soviet Union (ZEROVA 1976). Species of *Tetramesa* are regarded as extremely host specific. PHILLIPS (1936) and CLARIDGE (1961) stated that there were no species of *Tetramesa* which had been reliably recorded as attacking more than one genus, although sometimes species attack two or more congeneric grasses (DAWAH 1987, AL-BARRAK 2004).

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