



University of Zabol

Graduate school

Faculty of Agriculture

Department of Plant Pathology

Dissertation for M.Sc Degree in Entomology Science

**Study of the species diversity and host associations of aphid
parasitoids (Hym., Braconidae, Aphidiinae) in western
mountains of Isfahan province**

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Subfamily Aphidiinae (Hym., Braconidae) are specialised as solitary endoparasitoids of aphids and are important in controlling this pest. In this present work the species diversity and host associations, and its correlation with changes in height were studied. Western highlands of the Isfahan province as an indicator of the southern Zagros was chosen as the sampling area. Sampling was performed during 2009-2011 from vegetation in different heights based on height of the zoning, range of hight (1500-1900 and 1900-2500). The aphid colonies were collected and stored into the plastic plates with cap after the initial check with the host plant foliage. After completion growth of the parasitoids, emerged the parasitoid wasps and were collected. Totally 8 genera and 22 species on 37 aphid species on 65 plant species were collected and identified. 156 parasitoid-aphid-plant associations are recorded. Species diversity was measured with Simpson, Shannon-Weiner and Simpson's Eindex.

The most diversity observed in range of hight 1500-1900 ($H' = 2/951$), while the for range of hight 1900-2500 ($H' = 1/191$), also the case of Shannon-Weiner index, in range of hight 1900-2500, ($H'' = 0/418$) and in range of hight 1500-1900 ($H'' = 1/613$). Species diversity in host plants showed the most diversity in Rosaceae family ($H' = 4/36$ and $H'' = 1/717$). Species diversity in host aphids showed the most diversity on *Aphis gossypii* ($H' = 3/231$ and $H'' = 1/318$). Simpson's E index was obtained in the range of hight 1900-2500, ($E = 0/1181$) in the family Rosaceae, ($E = 0/369$) and the aphid *Aphis gossypii* ($E = 0/538$).

Key words: Bio-geographical zonation, Simpson index, Shannon-Weiner index, Simpson's Eindex, Tritrophic association