

Biological and ecological features of harmful species of *Aelia* in cereal growing areas of IRAN

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ABSTRACT

The biological and ecological features that have been studied are as follow:

1- Distribution areas of the 4 harmful species and comparative importance of their populations in different parts of the country have been determined.

2- Life cycle of all the four species have been studied in the central parts of Iranian Plateau. The main results are as follow:

a- *Aelia furcula*

This species is able to produce a second generation in the nature when conditions are favourable. Normally, the overwintered adults move to the cereal fields with a short delay after *E. integriceps*. The adults of the first generation appear during the third decade of June and the first decade of July. Some 70% of the new generation adults move to the aestivation quarters and the remaining portion initiate the second generation, the larvae of which suffer some 80% mortality in the first instar and some 90% in the second instar or are eliminated totally during this latter one. In other words, we have never seen the individuals of the fourth instar larvae of the second generation in the nature.

b- *Aelia acuminata*

In Varamin region where the main points of the biology of this insect have been studied, the activity of the overwintered adults occur simultaneously as those of

Eurygaster integriceps. The adults of the first generation are usually divided into three groups. One group start aestivation immediately without any attempt to initiate a second generation. Another group is scattered in the wild and cultivated plants surrounding the harvested cereal fields. These individuals normally disappear during October. The third group initiates a second generation in which a small percentage would be able to achieve their cycle.

c- *Aelia melanota* and *A. virgata*

In rain-fed areas the initiation of a second generation is more probable than in irrigated ones. This difference in biology results from environmental suitability of the former regions with higher altitudes and more abundant precipitation where the first and second instar larvae are found occasionally. We have never found the nymphs of the third instar, in other words, the individuals of the second generations would never be able to accomplish their cycle and reach the maturity in the cereal growing regions of the country.

3- As regards migration of these species and its range, it is concluded that not any considerable move takes place in the case of *A. furcula* and *A. acuminata*, whereas *A. melanota* and *A. virgata* have one population with migratory habit (in the irrigated regions) and one other which is non-migratory (in dry farming lands).

4- Aestivation and hibernation of *A. acuminata* takes place in the vicinity of the cereal fields, in other words we have rarely found some hibernating individuals in the surrounding altitudes. *A. furcula* feeds mainly on rainfed cereals grown on the slopes of altitudes and hence they pass their summer and winter diapause in the surrounding high-lands and altitudes. *A. melanota* and *A. virgata* estivate and hibernate in the mountains and lower hills.

5- The hymenopterous and dipterous parasitoids of these insects have been identified and their capability have been studied in different parts of the country.

6- In order to explain the increasing augmentation of the population of these noxious insects in most cereal growing parts of the country, and based on the previously realized investigations of the author in this regard, we have been able to prepare a list of host

plants of *Aelia* species in the altitudes as well as in the fields. The intensive and extensive feeding activity of these insects on non-cultivated plants have led us to believe that the increasing degradation of rangelands and bushlands is the major factor of these continuous change of feeding habit of *Aelia* species in IRAN.

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