

Abstract

In the present study the species *Chaetogaster limnaei* was recorded for the first time in two sites (Al-Mudayna and Al-Swaib) in Iraq .The animal was identified and described according to several characteristics :

-The worms are transparent , from 0.75 – 5.5 mm in length and 0.187 – 0.5 mm in width , and they move by creeping on the inner and outer surface of the host but they were unable to free swimming .

-There is no conspicuous Prostomium but there is Peristomium in the body of animal which consist of 14 – 16 segments , each one (except the first ,third and the fourth) bears a pair of ventral setae bundles but no dorsal setae were present . These setae varied in number and size , The anterior ones (on the second segment) consist of 15 – 18 setae per bundle and range from 120 – 150 μ m in length with crotchet and bifid ends . The posterior setae on the other hand , consist of 5 – 13 setae per bundle and range from 62 – 75 μ m in length with crotchet and bifid ends also .

- *C. limnaei* was found infested in two species (out of six) of freshwater snails (*Lymnaea auricularia* , *Physa acuta*) which were collected from the study sites . *C. limnaei* was not found in outer habitat (plants and water) .

-The animal mainly feeds on larvae of Parasites of Trematode (*Cercaria* , and *Miracidia*) . It also may feed on small invertebrates and eggs of other animals that are present in the environment .

The samples of snail *L.auricularia* were collected monthly from Al-Swaib and Al-Mudaina stations in Basrah governorate from November\2008 to October \ 2009 and the total sample were 2580 of which 1584 (61.39 %) were infested with Oligochaete *C.limnaei* . About 3917 individual of *C.limnaei* were isolated from the infested snail therefore the mean intensity was 2.472 . The highest record of prevalence was 81.03 % in autumn while the mean intensity was 2.926 in summer .

Also the study includes the variation of prevalence and mean intensity between size classes of the snails , the variation of the prevalence and mean intensity between months and stations , and relationship between prevalence and mean intensity . The prevalence was correlated significantly with pH and mean length , while there is no significant variations between size classes and both prevalence and mean intensity . Significant differences were found between the stations and both prevalence and mean intensity and also between months and both prevalence and mean intensity . On the other hand, the prevalence was correlated significantly with mean intensity .

The reproduction of the animal is by sexual and asexual methods . The sexual reproduction is rare and seasonal, but the dominant method is the

asexual one by fission (Paratomy) in which the animal can be divided into a chain of two or three or four individuals . The fission occurs between the segments 9-10 or 10-11 .The process of asexual reproduction is divided into five stages depending on morphological and anatomical changes :

- 1- Clearing zones stage : It is Found in worms that have a length of no less than 1.5 mm , and there is a distinction between the median and posterior regions of the parental animal .
- 2- Nicking appearance stage : Nick appears in this stage dividing the animals body into two regions , the anterior (Parental animal) and the posterior (future daughter animal) which is called generative region .
- 3- Segments appearance stage : At the beginning of this stage the appearance of segments takes place in each of the posterior region (part) of the parental animal , and the anterior and posterior regions of the daughter animal . These segments are distinguished by the growth of pairs of setae in each of them .
- 4- General differentiation stage : Some of the important morphological and anatomical changes take place during this stage . At first , the morphological change includes the continuance of the nicking longitudinally to the long axon of the animal . Then , it is curved to oblique level . At last the nicking occurs around the animal forming the margin of the mouth of the daughter animal .Other occurrences involve the differentiation in new forming regions (posterior of parental animal – anterior and posterior of daughter animal) including the clarity of its segments and the bundle of setae . The anatomic changes on the digestive tract level on the other hand include the narrowing under nicking zone .
- 5- Completion and fission stage : We Can see a chain of two individuals which are linked with each other by digestive tract which act separately in the earlier time of this stage . Then the nerves act separately representing in the separate movement which causes the fission of chain into two new individuals .

The percentages of each sexual and asexual reproduction , and measurement of the minimum, maximum and mean length in the field was measured . population structure was studied from November \2008 to October \2009 , and mean length in three size classes of the snail *L.auricularia* were measured . There is a significant correlation between the Paratomy percentages and each of the mean length and salinity , and the mean length was correlated significantly with pH .

The present study examines the relationship between the Oligochaete *C.limnaei* and the freshwater snail *L.auricularia* and considered it is parasitism because the study submits evidences by histological sectioning which showed that *C.limnaei* caused histopathological effects which include

slough cells of epithelial tissue , Metaplasia and Odema in the connective tissue , and also the *C.limnaei* fed on slough epithelial cells , and may be on slime which produced by snail .

The *C.limnaei* can eat more than 10 cercaria at the same time . The ability to protect the snails from infection by miracidia of *Fasciola gigantica* was improved invitro through the capture of these miracidia by *C.limnaei* before it can infect the snails . The daily increase in length of *C.limnaei* was measured invitro which was 0.16 mm . The time needed for the duplication depended on the length at the beginning of this process .The prevalence was affected invitro by daily increase of the length of *C.limnaei* .The present study found that the prevalence and mean intensity of the snail *L.auricularia* were higher than those of *P.acuta* .