The Feeding Ecology of Three Populations of *Aphanius Fasciatus* (Valenciennes, 1821) in the Saharan hydrosystems (Algeria)

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Abstract:

Macroscopic and microscopic examination of 419 guts from the three populations of Aphanius fasciatus (Z'mor Wadi, Ithel Wadi and Sidi Slimane Lake) identified five major groups of diet items: the plant fraction (algae and plant debris), insects (beetles, dytiscids, chironomid larvae and adults, and undetermined insects), mollusks (Lymnidae), crustaceans (Eucyprids), and others (sand, undetermined elements). The occurrence of algae was detected in 51% of the guts examined. The animal fraction (insects, crustaceans, and mollusks) is found during the months of September, October, November, and December, with more than 90% being represented by insects. Predation intensity is always less than 2 prey per gut for 9 months. Algae are found in 63% of guts in the Ithel Wadi population. In this population, the animal fraction is represented solely by insects. Although the number of empty guts is high in the Sidi Slimane Lake population (63%), predation intensity is highest in this population (4.75 prey/gut). The abundance of insects consumed by females is 14% compared to 5.5% for males. Females are distinguished by imprtant predation intensity compared to that of males1.65 prey/gut versus , 0.75 prey/gut respectively. Small fish (less than 25 mm) consume crustaceans, while insects are most abundant (over 50%) in fish larger than 35 mm. an ontogenetic diet shift with an increase in mean prey size with fish length was observed. The modified Costello graphic shows that the population of A. fasciatus adopts a generalized feeding strategy, with the specialization of certain individuals for certain types of items. Generalized linear model indicates size, months and space, significantly affect the number of prey consumed by A. fasciatus. Feeding intensity varies from one month to another. It is important during the cold period, in the population of Sidi Slimane Lake, in females and in individuals which have a size greater than 25 mm.

Keywords:

Aphanius fasciatus, feeding strategy, intraspecific variation, feeding ecology, Saharan hydrosystems, Algeria.