Comparison of the feeding behaviour and strategy of the Killifish, *Aphanius sophiae* Heckel, 1847, at two different localities in Iran

(Actinopterygii: Cyprinodontidae)

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Abstract. The feeding strategy and behavioural differences of a Killifish, *Aphanius sophiae* Heckel, 1847, were compared at a freshwater spring (Cheshme-Ali at Damghan) and a salty water river (Shour River) by considering stable and non-stable environmental conditions. The results showed that Killifish were affected by environmental differences. Chironomid larvae were its main food item in Shour River, whilst the species mainly fed on crustaceans and *Daphnia* at Cheshme-Ali. In Cheshme-Ali, the fish had suitable feeding for almost the whole year in spite of some fluctuations during the period of shortened daylight. In Shour River, however, the case was affected by salinity and thermo period. Therefore suitable and stable conditions allowed more prey selection for Killifish in Cheshme-Ali than in Shour River. The observations demonstrated that Killifish probably preferred to hunt a specific prey that is abundant and easy to capture. Furthermore, the size of both prey and predator can affect their feeding diversity. The results in Shour River showed a higher relative length of gut (RLG) ($p<0.05$) which means more energy utilization and osmoregulation in the gut. Also the Shour River population shows a relatively benthic, passive behaviour and a low condition factor ($p<0.05$) that is caused by different and non-stable conditions.

Key words. *Aphanius sophiae*, feeding behaviour, Cheshme Ali Spring, Shour River, Iran, Middle East.

Introduction

Killifish are a common fish in shallow, semi-stagnant and stagnant waters and tend to swim at low depths (AL-DAHAM et al. 1977). *Aphanius sophiae* Heckel, 1847 belongs to the family Cyprinodontidae and is endemic to Iran (COAD 2006). The fish live in the lower parts of rivers and pools covered by aquatic plants and have a high tolerance to temperature and salinity. They also tolerate pollution by various degrees of organic and inorganic matter and low oxygen levels in the water (FRENKEL & GOREN 2000). They have a small body size. These adaptations enable them to live under more variable physico-chemical conditions. Their feeding habits change according to food availability in different habitats. They feed on animals (crustaceans, aquatic insects, and molluscs), herbs and detritus (ALCARAZ & GARCIA-BERTHOU 2007).

There are some reports on the effects of salinity changes to fish physiology and ecology (YAN et al. 2004). Some fish species use energy to meet the metabolic cost of ionic and osmotic regulation, and it has been hypothesized that growth and food conversion might be

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