

NSR (1) 4.5(2) Q4 2013 Histological Study of the Intestine of Stoliczkae's Barb *Puntius stoliczkanus* (Day, 1871) (Cypriniformes: Cyprinidae)

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ABSTRACT

The histological and histochemical characteristics of the digestive tract of Stoliczkae's barb *Puntius stoliczkanus* (Day, 1871) were examined. This fish had an intermediate gut length with the nonexistence of the stomach. The histology revealed that the intestine consisted of four different layers: mucosa, submucosa, muscularis and serosa. The mucosa comprised the various villi and simple, columnar epithelia which were lying on the lamina propria. Muscularis mucosae and mucosal tubular glands were not present. Eosinophilic granular cells were observed along the intestine, mainly beneath the lamina propria. Histochemical analysis showed the goblet cells and eosinophilic granular cells react positively with periodic acid-Schiff. This research reports on the histological study of the alimentary tract of *P. stoliczkanus* for the first time.

Keywords: histochemistry, histology, intestine, periodic acid-Schiff (PAS), *Puntius stoliczkanus*

INTRODUCTION

Stoliczkae's barb *Puntius stoliczkanus* (Day, 1871), belonging to the family Cyprinidae (order Cypriniformes), are caught as juveniles and adults for sale in the ornamental fish trade in Thailand because of their unique characteristics. Thus, it is considered an interesting species for commercial aquaculture in Thailand. Nonetheless, little is known about the biology, ecology and morphology of this fish. This basic information could be valuable for the development of aquaculture in the country.

Knowledge of the digestive tract of normal histological structures is essential for a better understanding of the physiology and pathology of fish. The intestine of fish is a complex multifunctional organ which is crucial for the fluid

and electrolyte balance (sodium and chloride) and for regulating the endocrine level and metabolism and immunity, among other things (Buddington *et al.*, 1997). The morphological characters of the different digestive tracts in fish are related to the physical characteristics of food, feeding habits and taxonomy. The digestive tract of teleost has been widely studied and morphological descriptions have been provided of the function of many specialized anatomical structures in relation to different feeding adaptations (Cinar and Senol, 2006).

However, to date, no such information is available for *P. stoliczkanus*. Therefore, the intestine of *P. stoliczkanus* was selected and described using the principles of histological and histochemical analyses.

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