

STRUCTURAL MODIFICATIONS IN LIPS AND ASSOCIATED STRUCTURES OF INDIAN MAJOR CARP, *LABEO CALBASU*

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Accepted 13 October 2010)

ABSTRACT – In *Labeo calbasu* the mouth is subterminal and is bordered by thick and plicate lips thrown in to characteristic protuberances . The upper lip is associated on its ventral side with the horny upper jaw sheath and on its dorsal side with a conspicuous rostral cap having its apical end extending ventrally as a fold of flap partially shielding the upper lip and the fold of skin between the upper lip and rostral cap. The lower lip is associated on its dorsal side with horny lower jaw sheath on its ventral side with the fold of skin between the lower lip and skin on the ventral side of the head. In *Labeo calbasu* epithelia of fold of skin, rostrum and dorsal and ventral sides of upper lip and lower lip are mucogenic, while epithelia of horny upper and lower jaw sheath are keratinized. The uncili on horny jaw sheath associated with upper lip and lower lip, in this fish may be regarded as an adaptation to act as sharp cutting edges assisting the fish in feeding plants filaments and other plant materials on which it feeds. The mucous cells in the epithelium of fold of skin between the upper lip and the rostral cap and between the lower lip and the ventral head skin are more in number and secrete mucous at the surface. The mucous secretion in these regions may play a significant role in providing extra lubrication to the surface of the fold of skin. This reduces the resistance to surface drag during their stretching, enabling the jaw to protrude at the time of feeding with increasing efficiency and swiftness. The club cells are developed additionally to complement the mucous cells in the efficient functioning of the epithelium in protection against various hazards.

The presence of taste buds in upper and lower lip can be considered as an adaptation to assist the fish in selecting the food of its choice, available in surrounding medium through gustatory sense. It is interesting that the taste buds are, in general absent in rostrum, fold of skin and jaw sheath. It appears that the development of gustatory sense at these regions is not of desired significance.

Key words : Structural modification, lip, fish, *Labeo calbasu*.