

INTRODUCTION

The capability of a species to exploit the environment to the maximum not only determines its stability and survival but abundance also. This in turn leads to invasion of new territories, appearance of new variations and finally evolution of new species.

The prime needs of a species for survival and perpetuation of the race are food and safety. Utilization of available energy and growth foods and nonenergy foods means not only efficient functioning of the different organs associated with nutrition but also modifications of organs in response to the handling of food. Change of environment is common for the animals, and this often implies change in the types of food available. The organs concerned must accordingly be modified for maximum utilisation of the available food.

A clear division of labour exists in the alimentary system of vertebrates, and different regions of the gastrointestinal tract and digestive glands have been assigned to carry out specific functions. A some sort of overlapping of functions, however, exists in some fishes, which is considered as primitive, ^{but} with progressive evolution in other fishes and amphibians and reptiles this has disappeared, and functional assignments are more or less specific which has led to the modifications of morphology and histology too.

All organs associated with nutrition exhibit remarkable modifications in response to food and feeding habits. The structures in the oral region - the lips, jaws, oral mucosa, tongue, taste buds etc. - all are destined to play important role in the procurement, trituration and passing the food to the next portion of the gut, and all of them are remarkably modified for efficient functioning in their own environment.

The division of the next part of the gut into distinct functional zones, though largely dependent on feeding habits, is of some phylogenetic significance, and the retention of "stomachless" condition in some fishes has been possible presumably because of no major changes in their dietary habits.

The length of the gut is an yardstick to know the nature of diet of the animal in all the vertebrates. Easily digestible foods of animal origin has caused shorter length, while species depending on foods of plant origin, difficult to digest, possesses a long gut irrespective of its position in the evolutionary scale.

Meagre information on the histology of the alimentary system, digestive enzymes and absorption in fishes, amphibians and reptiles does not permit us to correlate the functions of the organs with the structures, and this is more true for the two later groups.

The aim of the investigation is to provide with the information on the anatomy, histology and some important data on digestive enzymes in several groups of vertebrates, which may help us in understanding the relationship between structures and functions.