COMPARATIVE STUDY OF GLUCOSE TRANSPORTERS GLUT-2 AND GLUT-5 IN OSTRICHES GASTROINTESTINAL TRACT

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INTRODUCTION. The knowledges about transport of sugars in animals and birds gastrointestinal tract are very important for science as carbohydrates are the main energy source of food. As up to now there is few information about the localization of glucose transporters in birds gastrointestinal tract the aim of the present study was to detect the localization of glucose transporters GLUT-2 and GLUT-5 in different parts of ostriches gastrointestinal tract comparatively in ostriches chicken after hatching and in 30 day old ostriches.

MATERIAL AND METHODS. Material from three parts of gastrointestinal tract - superficial gland zone of proventriculus, duodenum and the terminal zone of ileum - was collected from two ostriches immediately after hatching and three 30 days old female ostriches. Specimen were fixed with 10% formalin, embedded in paraffin, slices 7 μm thick were cut followed by immunohistochemical staining. Rabbit anti-GLUT-2 and Rabbit anti-GLUT-5 served as primary antibodies. Immunohistochemical staining was carried out according to the manufacturers guidelines (IHC kit, Abcam, UK).

RESULTS. In ostriches chicken after hatching the staining for glucose transporters GLUT-2 and GLUT-5 occured to be very weak: positively was stained only the cytoplasm of some epithelial and glandular cells of proventriculus and the epithelial cells of the apical parts of intestinal villi. The brush border membranes of the villi were stained weakly and the Goblet cells in the epithelium of small intestine were mostly unstained.

In 30 day old ostriches epithelial cells of proventriculus, the brush border of enterocytes as well as the Goblet cells in the small intestine were stained strongly positively for GLUT-2 and GLUT-5. Compared to GLUT-2 the terminal zone of ileum was more intensively stained by GLUT-5.

CONCLUSIONS. The investigation provided comparative information about the localization of GLUT-2 and GLUT-5 in gastrointestinal tract in ostriches of different age groups which is a prerequisite for the knowledges about the transepithelial transport of sugars.

Staining for GLUT-2 and GLUT-5 occured to be weaker in different parts of gastrointestinal tract of ostriches just after hatching compared to 30 day old ostriches which shows that the gastrointestinal tract of ostriches immediately after hatching is not yet entirely able for transportation of carbohydrates, hence the ostriches chickens mostly begin to eat about 3 days after hatching.