

Histo-Morphometric and Histochemical Comparative Study of the Liver and Pancreas in Barn Owl (*Tyto alba*) and Black Francolin (*Francolinus*)

Summary

The current study was carried out at the College of the Veterinary Medicine- of AlMuthanna University for observing histo-morphometric and histochemical comparisons between twenty eight healthy adult male birds of barn owl and black francolin, which represent different modes of feeding habits of both species, they were divided into two groups, each group comprising fourteen birds. Specimens were taken from different parts of the liver and pancreas. Morphological results in both birds have shown that the liver appeared as largest gland and bilobed organ that lied in the mid-coelomic cavity of the general cavity, it has reddish brown color in the owl whereas the color of the liver in francolin was dark brown. The liver of the owl was consisted of right and left lobes like the liver of francolin and has the same concavities in its lobes but it was small in size and there were no secondary lobes as in francolin. Francolin liver consisted of two lobes, right and left, each lobes sub divided into dorsal and ventral part. However, the results showed a significant difference (P The portal zone is built up of structures as: portal vein, hepatic artery and bile duct, in addition to lymphatic vessels. These vessels and ducts varied in diameters between the two species, the portal vein of both species was wide and lined by simple squamous epithelium in the tunica intima. The hepatic artery was also lined by simple squamous epithelium. The pancreas in both birds consists of acinar units with exocrine and endocrine portion. The exocrine portion consists of many lobules, each lobule contains a number of the acinar cells and these cells are associated with intercalated ducts lined by simple cuboidal epithelium. These ducts are connected with intra-lobular duct line by the same epithelial cell that lined the intercalated ducts, whereas the interlobular ducts are composed of an epithelium that appear simple squamous to cuboidal in francolin and simple flattened epithelium in owl. The endocrine part of the both birds are consisted of various shapes and sizes of islets which is called Langerhans islets that is scattered in the exocrine part. The histochemical study revealed that by using special stains showed that the main stored substances in hepatocytes are glycogen but the amount of

these materials varied among the two species of birds. The glycogen appears as pink-color deposits as identified throughout the cellular parenchyma of the liver especially in francolin, while glycogen appears less frequent in owl. The other carbohydrates materials can be showed in both exocrine and endocrine parts of pancreas. In conclusion, this study demonstrates that the liver was more developed and functional in francolins in comparison with owls. However, the results obtained from pancreas showed that the owls have the more organized pancreatic tissues when it compared with francolins.