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English summary for Master thesis titled:

" Comparative morphological studies on kidney and testis of two common insectivore from Egypt".

SUMMARY

COMPARATIVE MORPHOLOGICAL STUDIES ON KIDNEY AND TESTIS OF TWO COMMON INSECTIVORA FROM EGYPT

The present study includes histological, histochemical and ultrastructural studies on the kidneys and testes of two common insectivore species recorded in Egypt, the *Hemiechinus auritus* and *Crocidura flavescens*.

In the two investigated species, the urinary system consists of two kidneys, the ureters, the urinary bladder and the urethra. Grossly the kidneys are paired structures of characteristic shape. It is situated in the dorsal side of the abdominal cavity. The right kidney is generally at a higher level than the left one.

In hedgehog the ovoid shaped testes are located in the abdominal cavity throughout life, lying on each side of the urinary bladder just beneath the body wall, no scrotal pouches can be detected. While, in shrew the testes lie in the scrotum outside the body cavity at the base of the tail.

The obtained results showed great similarities in the structure of the testes and kidneys of the two studied animals. However, some differences were recognized including the thickness of renal papilla, size of glomeruli and seminiferous tubules, the thickness of tunica albuginea as well as the histochemical profile of carbohydrates and proteins. These differences may be related to the differences in environmental factors.

In the kidney, the glomerulus of the *H. auritus* is larger in number and wider in diameter than the other species *C. flavescens* in the cortical region, while, the inner medulla was thicker in *H. auritus* than the other investigated species. Histochemically, the glycogen and protein are concentrated in the

species. However, the cubical cells lining the uriniferous tubules are moderately charged. Meanwhile, the concentration of carbohydrates in *C. flavescens* is greater than the other investigated animal this may return to their habitat.

Ultrastructurally, there were some marked variations between the renal capsules of the two studied animals. The basal lamina underlying the renal capsule of *H. auritus* is thicker than those of *C. flavescens*. Moreover, the filtration slits of the basal lamina in *H. auritus* are narrower than those of *C. flavescens*.

In the two examined species the testis is an oval structure. In *Hemiechinus auritus aegyptius* the testis occupies the inguinal region while in *Crocidura flavescens deltae* lies at the base of the tail. On both species each testis is enclosed by a capsule of fibromuscular connective tissue called the tunica albuginea which may be thicker in *H. auritus* than the other investigated species *C. flavescens*

The histochemical investigation in the testes proved the importance of glycogen as a source of energy for sperm cell differentiation and growth. Glycogen was found in the connective tissue surrounding the seminiferous tubules. There is a great difference between *H. auritus* and *C. flavescens* in the number spermatogenic stages as it is much in the former one. However, the length of sperm of *H. auritus* is longer than those of the other investigated animal.

The ultrastructure of the mature spermatozoa in the two investigated species showed some differences in their shape and size. The head of the spermatozoon in *H. auritus* is elongated in shape and the acrosomal cap originates beside the tip of the nucleus and larger than that of the other investigated animal. On the other hand, the shape of the spermatozoon head in C. *flavescens* is ensiform and the acrosomal cap originates at the tip of the nucleus.

It is obvious that the histological, histochemical and ultrastructural configurations of the testis and kidney of the two studied species greatly suit their environmental habitats.