

THESIS TITLE : HISTO-MORPHOLOGICAL CHANGES IN REGENERATING TAIL
OF THE HOUSE LIZARD. (*Hemidactylus frenatus*)

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ABSTRACT

The aims of this research were to study histology and morphology of the normal and regenerating tail, and histological changes during tail regeneration of the house lizard (*Hemidactylus frenatus.*), with the light and scanning electron microscopic techniques. (LM and SEM)

Ninety tails of the house lizard were prepared for LM and SEM studies. Immediately after being cut, the specimens were fixed in 10% neutral buffered formalin and Jenkins' decalcifying solution (1921) with the paraffin technique. Then these were stained with haematoxylin and eosin. Those for the SEM were fixed in 2.5% glutaraldehyde in 0.1 M. cacodylate buffer pH.7.4.

The regenerating tails were studied by recutting five regenerating tails within each group of day 1 to day 15, day 30, day 45 and day 60 respectively. Each specimen was prepared by the same procedure as mentioned above for the normal tail.

The studies reveal that the length of a fully regenerated tail corresponding to the normal tail. Unlike the normal tail, the regenerated tail showed unsegmentation. Histological features of the integument, subcutaneous adipose tissue, muscle and submuscular adipose tissue were slightly modified. The vertebra developed permanent cartilage and the spinal cord modified to be the ependymal tube.

The regeneration of the tail began with migration of epithelial cells from the stratum germinativum of the epidermis to the cut end of the stump. The wound epithelium was then formed. During later stages of wound epithelial formation, the blastema cells accumulated between the wound epithelium and the cut end of the original stump tissues. Thenafter, there was a proliferation of blastema cells which further differentiated into myoblasts, chondroblasts and fibroblasts. Consequently, they were differentiated into muscle fibres, cartilagenous tube and adipose tissue and connective tissue in dermis, respectively. Wound epithelium was later differentiated into epidermis. It was also found that the prolongation of epithelial lining of the central canal of the spinal cord had formed the ependymal tube.