

Age Related Histological Study of Skin Epidermis in Deccani Sheep

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Abstract:

The quality of wool is determined in terms of fiber finesse measured in microns. It also depends upon follicular characteristics in the skin of sheep. The Deccani sheep is one of the fiber producing breeds in India. A meager information is available on the histology of the skin epidermis in Deccani sheep with reference to age. The epidermis had four layers from outside to inwards via stratum corneum, stratum granulose, stratum spinosum and stratum basal. The stratum spinosum presented four to five layers of cuboidal cells with spherical nuclei.

Keywords: Skin, Epidermis, Sheep, Deccani, Age

Introduction

The quality of wool is determined in terms of fiber finesse measured in microns. It also depends upon follicular characteristics in the skin of sheep. The Deccani sheep is one of the fiber producing breeds in India. A meager information is available on the histology of the skin epidermis in Deccani sheep with reference to age.

Materials and Method

The study was conducted on twenty-four Deccani sheep. The animals were grouped into four groups of 0-3 month age, 4-6 month age, 7-9 month age and 10-12 month age. The skin sample from lion region were collected and then fixed in 10 per cent natural buffered formalin. The tissues were then processed by adopting standard methods of dehydration, clearing and paraffin. The tissue sections of 5 microns thickness were obtained by manually operated microtome machine and stained with Harris Haematoxyline and Eosin, Wagers Van – Gibson stain, Resorcin-fuchin stain, Silver impregnation stain and Periodic Acid Schiff (PAS) stain (Mukharjee 1986). Micrometry of stained sections was made with ocular micrometer and data subjected to analysis (Panes and Sukhatame 1967).

Results and Discussion

Group I (0-3 month Age) the skin of Deccani sheep possessed epidermis and dermis (Fig.1). The epidermis had four layers from outside to inwards via stratum corneum, stratum granulose, stratum spinosum and stratum basal which was also observed by Delman and Brown (1987) in domestic animals. The average thickness of the epidermis in the present study was 6.82 ± 0.51 . However, it was slightly lower than the values 7.85 ± 0.88 reported by Warren et al. (1983) in Merino lambs. Stratum granulose consisted of single layer of elongated cells in the present study. The stratum spinosum presented four to five layers of cuboidal cells with spherical nuclei.

Group II (4-6 month Age): The epidermis of Deccani sheep in this group presented similar characteristics as that of the Group I. The average thickness of the epidermis (6.95 ± 0.72) in the present study was slightly lower than the values (7.85 ± 0.88) reported by Warren et al. (1983) in Merino lambs. This must be due to breed variations. The average thickness of the epidermis in this group was similar as that of Group I.

Group II (7-9 month Age) : The histology of the epidermis in this group was similar as that of the Group I and Group II. The average thickness of the epidermis in this group (7.50 ± 0.62) was significantly higher than the values observed in the Group I (6.82 ± 0.51).

Group IV (0.12 months age) : The histological structure of the epidermis in this group was similar as that of the groups I, II and III. The average thickness of the epidermis (8.49 ± 0.90) in the present study was significantly higher than the values observed in the Group I (6.82 ± 0.51), Group II (6.95 ± 0.72) and Group III (7.50 ± 0.62) may be due to the advancement of the age in Deccani sheep.

Summary

The age related changes in the histology of the skin in Deccani sheep was studied. The epidermis with St. Corneum, St. granulosum, St. Basale was prominent. St. Lucidum was absent. These cells were abundant in Group I and decreased in number with the advancement of age in Deccani sheep. The thickness of the epidermis was increased with the advancement of age.

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