

PAS – ALCIAN BLUE REACTIVITY IN THE AIRWAYS OF THE BUFFALO CALVES

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ABSTRACT

The present study revealed that the trachea of buffalo calves comprised of seromucous (mixed) type of secretory cells in the epithelium as well as in tracheal glands. The Periodic acid Schiff's staining was generally diffused and granular whereas, the Alcian blue staining occurred mainly at the luminal borders of the cells. There was preponderance of serous (Periodic acid Schiff's) positive over the mucous (Alcian blue positive) secretions. The serous secretions did not contain appreciable amount of glycogen while mucous secretion comprised of mainly the sulphated acidic mucopolysaccharides.

Key words: PAS, Alcian blue, airways, buffalo calves

The respiratory tract of the buffalo calves is susceptible to large variety of infections and allergies in different climatic regions but still the reports are meager on the buffalo respiratory tract with respect to the type of secretions. The clear picture with regard to the distribution of serous and mucous cells will help in better treatment to animals.

MATERIALS AND METHODS

Tissue samples were collected from three apparently healthy buffalo calves (6-8 months age) from trachea, primary bronchus and at different levels of bronchial tree (Fig 1) The tissues were fixed in 10% neutral buffered formalin for at least 48 h. Paraffin embedding method was used to process the tissues and the sections of 5-7 μ were cut. These were stained by McManus' method for glycogen without and with saliva treatment, and PAS-Alcian blue method for mucosubstances at pH 2.5 and 1.0 (Luna, 1968).

RESULTS AND DISCUSSION

The trachea was lined with pseudostratified ciliated columnar epithelium. The Periodic acid Schiff's (PAS) reactivity in general was more

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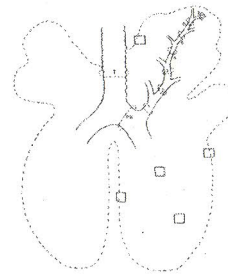


Fig 1. Line diagram showing the areas from where the tissues were collected for histochemical studies, T- trachea, PB- primary bronchus and 1-7 bronchial tree.

confined to supra nuclear (Fig 2) part of epithelial cells in the different areas of the bronchial tree. The ventral part of trachea showed uniform mild Periodic acid Schiff's (PAS) positive reaction in its epithelial lining, however, the cells with apical globular reaction were equally distributed. The submucosal glands also showed mild PAS positive reaction which was uniformly distributed. There was not much appreciable difference in reaction with or without saliva digestion. In dorsal part of trachea, the PAS reactivity was more diffused in the epithelial lining, and glands were almost similar to that observed in the ventral part of the trachea. The mucosal epithelium at tracheal bifurcation showed mild but diffused PAS reactivity and a similar reaction was seen in submucosal glands.

In the principal bronchus, supranuclear zone of the epithelial lining showed a mild diffused reaction but some granular material was also seen. Few submucosal glands, however, showed

