

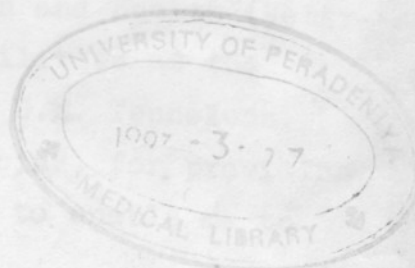
A PATHOLOGICAL & BACTERIOLOGICAL STUDY  
OF  
CAPRINE PNEUMONIA IN SRI LANKA



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by

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## SUMMARY AND CONCLUSIONS

The material described in this thesis was collected during a two year period (April 1979 - March 1981), from the Colombo Municipal abattoir, where goats originating from the predominantly goat rearing areas of Sri Lanka were slaughtered. Some material was also collected from the Kandy Municipal abattoir and from the Government Goat Farm, Kottukachchiya.

A total of 9526 lungs were examined and of these 625 (6.56%) had pulmonary lesions. Pathological studies were done on 483 (77.28%) lungs with pneumonic changes. These lesions were classified as fibrinous pneumonia (80.33%), bronchopneumonia (17.18%), cuffing pneumonia (2.07%) and parasitic pneumonia (0.4%).

Bacteriological studies were conducted on 153 pneumonic and 58 normal lungs. Pasteurella haemolytica was found to be the predominant bacterium associated with the pneumonic lungs. Further, this is the first recording of the isolation of Pasteurella haemolytica in goats in Sri Lanka. It was isolated from 115 (75.16%) of pneumonic lungs; the other organisms present were Corynebacterium pyogenes, Streptococcus uberis, Neisseria catarrhalis, Escherichia coli (haemolytic and nonhaemolytic) and Micrococci species. Fifty five (94.8%) of the normal lungs were sterile; 2 (3.4%) yielded Micrococci species while P. haemolytica was isolated from one (1.72%) lung.

Cultural and biochemical studies were done on 50 cultures of P. haemolytica isolated from the pneumonic lungs. These cultures produced a zone of beta haemolytic on blood agar medium containing sheep or bovine blood. The growth on MacConkey agar was enhanced by the inclusion of goat sera. The biochemical reactions of the strains isolated were uniform and closely

resembled that of the reference strains. They were catalase, oxidase, nitrate positive, urease, indole, hydrogen sulphide negative and failed to liquify gelatin. All strains fermented glucose, maltose, mannitol, xylose and sorbitol and failed to ferment adonitol, dulcitol and trehalose. The reaction with lactose, salicin and arabinose varied between strains.

The carrier status of P. haemolytica in the nasopharynx was determined by the examination of 139 goats at three different places viz. Colombo Municipal abattoir (CMA), Kandy Municipal abattoir and the Kottukachchiya Government Goat Farm. There was a significantly ( $P < 0.05$ ) higher isolation rate at the CMA. There was no correlation between the presence of the serum antibody and the presence of the organism in the nasopharynx.

A total of 88 strains of P. haemolytica isolated from the respiratory tract of goats was serologically typed. The 50 isolates from the pneumonic lungs showed a serological uniformity with serotype 2 been most predominant (82%); serotypes 6, 7, 8 and 9 were also present. Only one culture was untypable. In the 38 isolates from the nasopharynx on the other hand, a greater serological variation was observed; serotypes 1, 2, 6, 7, 11 and 12 were present and a large number of cultures (32%) were untypable.

Attempts to reproduce the disease experimentally in adult goats, by the aerosol method of inoculation failed. The mouse pathogenicity test showed that 0.5 ml. of the undiluted culture was pathogenic when given by the intraperitoneal route.

This study, therefore, provided ample evidence to support the view that the predominant form of pneumonia among the goats investigated was fibrinous pneumonia and that this, form of

pneumonia was predominantly associated with P. haemolytica. It also showed that a variety of serotypes of P. haemolytica are present in the upper respiratory tract of clinically normal goats and that when subjected to "stress" predominantly one serotype produced a fibrinous pneumonia. The exact nature of the "stress" however, could not be elucidated and attempts to reproduce the disease failed.

Studies on the exact nature and mode of action of the factors commonly referred to as "stress" merit further investigation.