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Histopathological, Bacteriological and Molecular study of Small Ruminants Enzootic Respiratory Complex at Al Muthanna governorate

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Abstract

Small ruminants play an essential part in the nutrition and income of people around the world as well as in Iraq. The production of the small ruminant in Iraq is affected by diseases, inadequate nutrition and poor genetic resources of the local stock. High morbidity and mortality rates in small ruminants occur due to respiratory tract diseases in Iraq. Consequently, this study intends to investigate the bacteriological and histopathological features of small ruminant's enzootic respiratory complex in Al Muthanna governorate, moreover, to characterize the isolated *Mannheimia haemolytica* using PCR technique. The study was extended from October 2017 to March 2018, as a cross-sectional survey on sheep and goats. One hundred four nasal swabs collected from the nasopharyngeal area from sheep and goats. The nasal swab was analyzed using standard methods. Tissue samples were also collected from animals for histopathological investigation. Molecular Identification was done for isolated *Mannheimia haemolytica*. A total number of diseased animals was 104 out of 270 (38.51 %), in addition to the five dead animals. The percentages of the respiratory diseases were 57.94% and 25.76% in sheep and goat respectively. *Mannheimia haemolytica*, *Escherichia coli*, *Pasteurella multocida, Klebsiella pneumoniae* and *Staphylococcus aureus*, and *Streptococcus pyogenes* were isolated. Suppurative and exudative pneumonia, congestion, and various stages of pneumonia were seen grossly. Histologically, suppurative, necrotic and fibrinous bronchopneumonia, and bronchointerstitial and pyogranulomatous pneumonia were seen. All *M. haemolytica* isolates were positive in PCR for 16 s rDNA and 12 s rRNA genes that showed a specific 304 bp and 270 bands respectively on the agarose gel. In conclusion, this study approved the incidence of small ruminant's enzootic respiratory complex in Al-Muthanna governorate. Moreover, *M. haemolytica*

showed positive results with PCR. The authors recommend considering PCR as a valuable tool for the rapid detection of *M. haemolytica*. Another epidemiological studies needed to be done regarding the role of *M. haemolytica* and other causative agents in clinical cases in small ruminants enzootic respiratory complex, thereby providing the basis for effective preventive strategies.

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