World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:12, No:03, 2018

Characterisation of Pasteurella multocida from Asymptomatic Animals

Authors : Rajeev Manhas, M. A. Bhat, A. K. Taku, Dalip Singh, Deep Shikha, Gulzar Bader

Abstract : The study was aimed to understand the distribution of various serogroups of Pasteurella multocida in bovines, small ruminants, pig, rabbit, and poultry from Jammu, Jammu and Kashmir and to characterize the isolates with respect to LPS synthesizing genes, dermonecrotic toxin gene (toxA) gene and antibiotic resistance. For isolation, the nasopharyngeal swab procedure appeared to be better than nasal swab procedure, particularly in ovine and swine. Out of 200 samples from different animals, isolation of P. multocida could be achieved from pig and sheep (5 each) and from poultry and buffalo (2 each) samples only, which accounted for 14 isolates. Upon molecular serogrouping, 3 isolates from sheep and 2 isolates from poultry were found as serogroup A, 2 isolates from buffalo were confirmed as serogroup B and 5 isolates from pig were found to belong to serogroup D. However, 2 isolates from sheep could not be typed, hence, untypable. All the 14 isolates were subjected to mPCR genotyping. A total of 10 isolates, 5 each from pig and sheep, generated an amplicon specific to genotype L6 and L6 indicates Heddleston serovars 10, 11, 12 and 15. Similarly, 2 isolates from bovines generated an amplicon of genotype L2 which indicates Heddleston serovar 2/5. However, 2 isolates from poultry generated specific amplicon with L1 signifying Heddleston serovar 1, but these isolates also produced multiple bands with primer L5. Only, one isolate of capsular type A from sheep possessed the structural gene, toxA for dermonecrotoxin. There was variability in the antimicrobial susceptibility pattern in sheep isolates, but overall the rate of tetracycline resistance was relatively high (64.28%) in our strains while all the isolates were sensitive to streptomycin. Except for the swine isolates and one toxigenic sheep isolate, the P. multocida isolates from this study were sensitive to quinolones. Although the level of resistance to commercial antibiotics was generally low, the use of tetracycline and erythromycin was not recommended.

Keywords : antibiogram, genotyping, Pasteurella multocida, serogrouping, toxA
Conference Title : ICVBS 2018 : International Conference on Veterinary and Biomedical Sciences
Conference Location : Osaka, Japan
Conference Dates : March 29-30, 2018