In vitro antigenicity and cross-reaction of the outer membrane proteins of Pasteurella haemolytica A2, A7 and A9

ABSTRACT

The outer membrane proteins of Pasteurella haemolytica A2, A7 and A9 were subjected to SDS-PAGE and immunoblotting. The molecular weights of the polypeptide bands ranged between 33 to 97 kDa. The major polypeptide bands for P. haemolytica A2 were 33.4, 39.2 and 45 kDa while the minor polypeptide bands were 50, 58.7, 66.2, 84.7 and 97.4 kDa. Analysis of the outer membrane proteins of P. haemolytica A7 revealed two major protein bands of 33.4 and 45 kDa and three minor polypeptide of 40, 50 and 66.2 kDa. There were three major (33.4, 37.5 and 45 kDa) and one minor protein band (50 kDa) in the outer membrane proteins of P. haemolytica A9. There was one major protein band from each of the P. haemolytica A2, A7 and A9, which was unique to the respective serotype and appeared to represent the respective serotype. These were the 39.2 kDa band for P. haemolytica A2, the 40 kDa band for P. haemolytica A7 and the 37.5 kDa band for P. haemolytica A9. Following homologous immunoblot, all the serotypes showed pronounced antigenicity at the 30 kDa band. Heterologous immunoblot using the antiserum of P. haemolytica A2 did not reveal any antigenic band of P. haemolytica A9 but revealed antigenic bands at 30 and 31 kDa of P. haemolytica A7. Heterologous immunoblot using the antiserum of P. haemolytica A7 revealed antigenic band at 30 kDa of all the three serotypes while the antiserum of P. haemolytica A9 failed to reveal any common antigenic band between all three serotypes. Thus, the 30 kDa band of P. haemolytica A7 may be a suitable candidate for a sub-unit Vaccine against pneumonic pasteurellosis of sheep and goats.

Keyword: A1, Lipopolysaccharide, Specificity, Expression, Serotypes, Multocida, Cattle