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Molecular Characterization Among Serogroups of *Pasteurella multocida* Isolated from Different Animal Hosts in Malaysia (1996 – 2004)

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Molecular methods for rapid detection and differentiation of serogroups (A, B, D and Untypeables) of *Pasteurella multocida* (PM) isolated from 1996 to 2004 in Malaysia were studied. A total of 125 strains were isolated from different domestic animal species (cattle, buffaloes, sheep, goats, pigs, rabbits, dogs and cats), avian species (chickens, ducks and turkeys) and wild animals such as deer, tigers, orang-utan (primates, *Pongo pygmaeus*) and marmosets. Polymerase chain reaction (PCR) serotyping was 100% species-specific, more robust, accurate and highly specific in differentiating serogroups of *P. multocida*. All the *P. multocida* strains exhibited drug resistance against triple-sulfonamides and streptomycin and were sensitive to cefotaxime, kanamycin, chloramphenicol, ampicillin, tetracycline and gentamicin.

Enterobacterial repetitive intergenic concensus (ERIC), repetitive extragenic palindromes (REP), random amplified polymorphic DNA (RAPD) and Pulsed-Field Gel Electrophoresis (PFGE) were used to subtype these microorganisms to determine their genetic diversity. The strains of *P. multocida* obtained from the different hosts, were very diverse as determined by the 3 PCR fingerprinting techniques and PFGE. ERIC-PCR, REP-PCR, RAPD-PCR and PFGE differentiated all the 4 serogroups of *P. multocida* and generated several PCR patterns and a number of PFGE profiles. PCR techniques were also successful in differentiating the untypeable strains, thus helping to improve the detection of this genus. Multiple subtypes of *P. multocida* as determined by genetic typing methods are responsible for pasteurellosis among the animal species in Malaysia. This study also indicated that the hosts for pasteurellosis have shifted from food-producing animals to wild animals and pets.