MOLECULAR EPIDEMIOLOGICAL TOOL FOR PLASMID DNA GROUPING
OF Pasteurella multocida SEROTYPE A, B, AND D USING RESTRICTION
ENZYME ANALYSIS

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Plasmid profiles of sixty seven P.multocida isolates provided by the Veterinary Diagnostic
Laboratory, Petaling Jaya were determined by using the modified method of Close and Rodriguez
(1982). Three different plasmid profiles were detected in twenty one isolates of P.multocida
excluding serotype A which was shown to be plasmid-free. The eighteen isolates of P.multocida
serotype B when examined for plasmids all produced two plasmid bands corresponding to 3.0 and
5.2 kb. When the total plasmid DNA from these isolates were subjected to restriction enzyme (RE)
analysis with HaeIII, it was apparent that there was only one plasmid species in these isolates.
However, this enzyme did not cleave the plasmids DNA of P.multocida serotype D; PMD327,
PMD328 and PMD329. PMD327 and PMD328 were found to share a similar plasmid size of 3.2
and 5.9 kb while PMD329 was found to harbor plasmid DNA of sizes 5.2 and 5.9 kb. Surprisingly,
when these identical plasmids of PMD327 and PMD328 were subjected to RE analysis by using
SspI enzyme, different fingerprint profiles were obtained, while the plasmid DNA of PMD329 was
found to be undigested. This indicates that plasmid profiling coupled with restriction
endonuclease analysis could be an additional useful epidemiological tool in grouping P.multocida
isolates.

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