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Further Insights into the Diversity of Coagulase Positive Staphylococci: Special Consideration to Coagulase Gene Polymorphism and Reaction

A Thesis presented by

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بسم الله الرحمن الرحيم

(وقل اعملوا فسيرى الله عملكم
ورسوله والمؤمنون)

سوره التوبه

(سبحانك لا علم لنا إلا ما
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الحكيم)

سوره البقرة

صدق الله العظيم

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Abstract

In this study 226 samples (80 human samples, 60 dog samples, 36 cat samples and 50 poultry samples) were examined for the presence of coagulase positive staphylococci by using conventional method and PCR. Based on conventional methods there is 32 isolates were identified coagulase positive by slide method, whereas this number was diminished by tube method to be 20 isolates. To confirm *S. aureus* isolates, Voges-Proskauer test was applied as simple confirmatory test for *S. aureus*. The test revealed 16 isolates were are full identified. Polymyxin B resistance test was used to differentiat coagulase positive staphylococci, and two isolates completelty identified as *S. intermedius* depending on phenotypic parameters. Thermonuclease and coagulase gene were amplified in both species *S. aureus* and *S. intermedius* with the same primer pairs. The PCR results of coagulase positive staphylococci were subjected to restriction digestion using RFLP with *AluI*. The banding profiles of RFLP were 4 distinct profiles (I, II, III & IV). Discrimination powers of RFLP not enough to differentiate *S. aureus* from *S. intermedius*. The sequencing for *coa* gene was done for selected 10 isolates including 2 *S. intermedius* isolates. The constructed phylogenetic trees for *Staphylococcus* isolates revealed a suppose of the major ancestor for animal infection cases could come from human cases. In spite of all isolates are from different origins but it's harboring the major one genotype of *S. aureus* clone. It is tempting to say that *coa* gene sequence of *S. intermedius* was reported as far as it is known for the first time in Egypt on GenBank with accession No. KU178988 & KU178993. It is loped that the data obtained puts this study in perspective when designing control strategies of staphylococcal infection as the issues in the concern.

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