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Virulence factors analysis in streptococcus agalactiae from the clinical isolates

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Streptococcus agalactiae is commonly known as Group B Streptococcus (GBS) and it is a most common cause of life-threatening bacterial infection. GBS first considered as veterinary pathogen causing mastitis in cattle, later become a human pathogen for severe neonatal infections. In this study, a total of 20 new clinical isolates of S. agalactiae were collected from male (6), and female patient (14) with different age group. The isolates were from Urinary tract infection (UTI), blood, pus and eye ulcer. All the 20 S. agalactiae isolates were identified by serogrouping and MALTI-TOF-MS analysis. Antibiotic susceptibility/resistance test was performed for 20 S. agalactiae isolates, off these phenotypic resistance pattern showed for tetracycline, vancomycin, ampicillin and penicillin. Genotypically we found two antibiotic resistance genes such as, Betalactem antibiotic resistance gene (Tem) (70%) and tetracycline resistance gene Tet(O) 15% in our isolates. Six virulence factors encoding genes were performed in twenty GBS isolates, cfb gene (100%), followed by, cylE (90.47%), lmp (85.7%), bca (71.42%), rib (38%) and low frequency in bac gene (4.76%) were determined. Most of the S. agalactiae isolates produced strong biofilm in polystyrene surface (hydrophobic), and low level biofilm formation were found in glass tube (hydrophilic) surface. lytR is secreted protein and localized in bacterial cell wall, extra cellular membrane, and cytoplasm. In silico docking studies were performed for lytR protein with four antibiofilm compounds, including a peptide (PR39) with the docking study showed peptide has strong interaction followed by Ellagic acid and interaction length is 2.95, 2.97 and 2.95 A°.

Keywords:

Virulence factors, streptococcus agalactiae, clinical

Biography:

Dr. N.Balasubramanian, Scientist, at School of Biological Sciences at Madurai Kamaraj University, Madurai, India. He received his Ph.D from University of Madras and earned Post-doctoral experience in Taiwan and Portugal. He presented his work in Argentina, Germany, Portugal, Spain, Taiwan, Netherland, USA. He has 15 years of Postdoc experience and currently working in Clinical Microbiology. He published many articles in National and International Journals. He has served as an Editor, board members and reviewers in more than 25 Journals. He received several awards, including UGC, DBT, DOD, and DST-SERB prestigious Ramanujan Fellowship in India and NSC-Taiwan, DRCT and FCT Portugal.

Speaker Publications:

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