

($D=0.89$), followed by virulence profiling ($D=0.80$), *spa* typing ($D=0.77$), MLST ($D=0.75$), *SCCmec* typing ($D=0.66$) and *agr* typing ($D=0.44$). The study emphasise the use of combination of several methods for improving the efficiency of discrimination of MRSA isolates from this region. The use of combination of the typing method depends on the strain populations present in a given geographical locations and their clonality. Based on this study it can be concluded that *spa* or MLST in combination with the virulence or antibiotic resistances profiling produced the highest discriminatory power for typing of MRSA isolated from seafood and aquatic environment.

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Molecular characterization and evaluation of antibiotic susceptibility and biofilm forming capacity of pathogenic *Escherichia coli* isolated from seafood

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The present study made an attempt to investigate the occurrence of pathogenic *E. coli* in seafood, its antimicrobial susceptibility patterns and the biofilm forming capacity. In the present study, 43 seafood samples collected from commercial markets of Cochin were screened for the presence of pathogenic *E. coli*. The 21 biochemically confirmed isolates were further confirmed by PCR using various gene specific primers. The PCR results revealed that out of 21 isolates screened for the presence EIEC, EPEC, ETEC and EHEC strains of *E. coli*, only one isolate from fish sample (ECF5)

showed positive results for *rfbE* gene of EHEC strain with a specific band of 213 bp on agarose gel. Antibiotic susceptibility pattern of the isolates revealed that 90% of the (19 strains) isolates were found to be multidrug resistance to more than 5 antibiotics, whereas all the isolates (100%) showed sensitivity to doxycycline, naladixic acid, and azithromycin. The MAR index of all the isolates was found between 0.2 and 0.5. Even though all the isolates exhibited complete resistance to trimethoprim with no MIC level, the MIC observed for ciprofloxacin and for polymyxin-B and gentamicin was 0.016mcg/ml and 128 mcg/ml, respectively. Out of the 15 moderate biofilm forming *E. coli* obtained, 2 of them exhibited maximum multidrug resistance to more than 7 antibiotics whereas remaining 13 isolates showed multidrug resistance to 4-5 antibiotics. Hence this study revealed the emergence of antibiotic resistance in biofilm forming *E. coli* in seafood from Cochin markets, which may pose future threat to develop control strategies in the fish processing industry and also pose significant treatment challenge to physicians.

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Assessment of microbiological quality of fish from rivers Ganga and Mandakini

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Bacteria are ubiquitous in the aquatic environment. Water-borne disease continues to pose a major threat to public health, both in the developed and developing