Abstract: Background and objective: Streptococcus pneumoniae accounts for bacterial meningitis and is a cause of morbidity among children. Therefore, its rapid detection is necessary. The classic diagnosis of S. pneumoniae is based on methods such as gram staining, culturing and serological tests. These tests are limited by antibiotic therapy leading to false negatives and culturing takes too long, thus use of PCR assay may allow faster recognition here in. The aim of this study was to establish a PCR test for specific detection of S. pneumoniae.

Materials and methods: DNA was extracted from S. pneumoniae. The primers were designed for ply gene and PCR was setup on the genomic DNA. The amplicon was cloned in pTZ57R/T plasmid as positive control. The presence of the gene in the T-vector was confirmed by colony PCR and sequencing. Sensitivity of the test was performed on 10-fold serial dilutions with starting concentration of 100ng/µl. Evaluation of the Specificity was examined on genomic DNA of other bacterial strains.

Results: PCR generated a 727bp amplicon, as expected. Through specificity test, no band was obtained from negative controls indicating the specificity of the test. Colony PCR and sequencing results confirmed the presence of PCR product in T-vector. The limit of detection was 250 copies for ply gene.

Conclusions: Knowing that traditional methods are time consuming and limited by prior antibiotic therapy in addition to having low sensitivity and specificity, the results of this study showed a higher sensitivity and specificity, therefore, this method is a simple, rapid, sensitive and specific test for detection of S. pneumoniae.

Streptococcus pneumoniae, meningitis, Molecular diagnosis, PCR

Presentation: Poster