STRUCTURAL STUDIES OF THE CAPSULAR POLYSACCHARIDE FROM *STREPTOCOCCUS PNEUMONIAE* TYPE 25F

M. RAJAPAKSHA*, P. JANSSON** AND N.S. KUMAR*

**Department of Chemistry, University of Peradeniya*
***Analytical unit, Clinical Research Center, Huddinge University Hospital, NOVUM, Huddinge, Sweden*

Streptococcus pneumoniae is one of the more important causes of respiratory tract infections. Otits media, that is middle ear infection among children, is often caused by *S. pneumoniae*. Nosocomial penumonia, ie hospital induced pneumonia, is often lethal and about 25% of these are caused by pneumococci. Such infections can however, be prevented with the use of vaccines. A recent problem that has arisen is the presence of antibiotic resistant strains of *S. pneumoniae*. The cell wall of streptococci contains so-called virulence factors inter alia a capsular polysaccharide. The study of the molecular background to the structure of the virulence factors is of interest because of increased drug resistance among streptococci and also because of their phenotypic behaviour. The highest priority for these studies was given to vaccine strains which are now all characterized. However, the frequent but non vaccine strains are also of interest.

S. pneumoniae type 25F was used in this study. This particular strain of *S. pneumoniae* has one of its residues partially amidated with amino acids. A capsular polysaccharide fraction of reasonably high purity was obtained using gel filtration, anion exchange chromatography and chemical treatments to remove non-essential parts. The structure of this fraction was investigated by chemical degradation, GLC, CLC-MS analysis together with NMR characterization. From the results of these studies we have established the presence of the following structural elements, where the order of the amino sugars is not defined.

-4)α-GalNAc(1-4)α-GalNAc(1-3)α-GlcNAc(1-3)α-GlcNAc(1-3)β-GalA(1-

β-Gal*f*(1-2)