

Thesis Title            Rapid Identification of Group B Streptococcus  
                         by Using Purified Sida Tomato Lectin Reagent  
                         Compared with Streptex B Reagent

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Date of Graduation 29 October B.E. 2535 (1992)

#### ABSTRACT

Group B streptococci (GBS) are causative agents in a wide variety of human infections. Neonatal sepsis and meningitis are of particular concern because of their high incidence and mortality rates. Reliable and rapid identification of GBS in primary culture from colonized mothers are needed for the protection of neonatal infections; and in this study used a tomato lectin reagent to identify GBS. From chemical and biological studies, an affinity purified lectin from variety Tomato Sida was found to be a glycoprotein with molecular weight 71,000 daltons and consisted of 63% protien and 37% carbohydrate (arabinose 75%; fructose 25%). Amino acid analysis revealed an high abundance of serine. Its properties were closely related to, but not identical with the common tomato, a different variety reported by other investigators. This lectin was coupled with polystyrene latex particles to yield an agglutination reagent for the identification of GBS. A total of 368 bacterial strains were tested, their grouping identity was previously

determined by the standard methods; and in a blind study, the results were comparable to the grouping results obtained by Streptex B reagent as reference method of detecting GBS. It was shown that 151 of 160 GBS gave strong and rapid agglutination reactions with the lectin-latex reagent (94.4 % sensitivity) and none of the 150 other serogroups of beta-hemolytic streptococci caused agglutination (100% specificity). However, cross-reaction was observed in all strains of *Streptococcus pneumoniae* with alpha-hemolysis; thus it was to use suggested this reagent for detecting only isolates presumptively identified as beta-hemolytic streptococcus. In addition, 9 of 160 GBS showed weak-to - moderate (1+ to 2+) agglutination reactions, thus it should be confirmed by serological grouping.

The test using tomato lectin-latex reagent had similar efficacy with the other three conventional tests, i.e. Christie, Atkins, Munch-Petersen (CAMP), hippurate hydrolysis, and pigment production, for differentiating group B from other serogroups of beta-hemolytic streptococci. The benefit over the conventional tests is in its ease, rapidity, and low cost. When combined with colonial morphology and hemolytic reaction, this test reagent appears to provide a highly rapid, simple, specific and cost-effective means and can be used as an alternative method of identifying GBS from primary cultures for small clinical laboratories.