EXTENDED REMARKS AND DISCUSSION

Serological Classification of the Actinomycetales

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Preparations of the cell walls, plasma, exo-antigens and some polysaccharide fractions were made from 140 strains, most of which were nocardiae and mycobacteria, but a number of streptomycetes and actinomycetes and Micromonospora, Waksmania and Dermatophilus strains were also included. Antisera were produced in rabbits by repeated, alternate, subcutaneous and intravenous injections of these preparations. The diffusion-precipitation and immunoelectrophoresis tests were used for the serological examination of all the antigen preparations except those of the cell walls and polysaccharide fractions, for which a complement-fixation test was employed.

Cell-wall preparations gave the largest number of cross-reactions between various strains and genera of the Actinomycetales. Thus, this complex antigenic material could not be regarded suitable for serological classification. In contrast, polysaccharide fractions obtained by extraction of the delipidized cell walls proved to be satisfactory antigen preparations for serological grouping of the nocardiae. Polysaccharide fractions obtained from other genera produced species—or type-specific—reactions when tested against the anti-fraction sera.

Plasma-preparations and, to a lesser extent, the exo-antigen preparations were found to be most suitable antigens for the differentiation of serological groups and types of the Actinomycetales. Although some cross-reactions between mycobacteria and nocardiae and between certain strains of nocardiae and streptomycetes were observed, testing of the plasma preparations with a number of selected "standard" anti-plasma sera made it possible to distinguish thirteen distinct serological groups of the nocardiae and eleven serological groups of the mycobacteria. A number of serological types were separated in almost every group. A scheme of serological classification of these microorganisms has been proposed.

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