Experiments are under way to determine whether isoniazid inhibits the synthesis of these polysaccharides, stimulates their breakdown, or causes their release from the cells.

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Free Trehalose in *Corynebacterium xerosis*

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Similarities between the cell-wall constituents of mycobacteria and corynebacteria (Cummins & Harris, 1958) and the presence of dimannophosphoinositides in both genera (Brennan & Ballou, 1967; Brennan, 1968) indicate a close relationship between them. The soluble carbohydrates of *Corynebacterium xerosis* were investigated and compared with those of mycobacteria (Winder, Brennan & McDonnell, 1967) in a further examination of this relationship.

The growth and harvesting of *C. xerosis* were as described by Brennan (1968). Washed organisms were extracted several times with 50% (v/v) ethanol at 0°. Ethanol was removed from the extracts and they were fractionated with barium (LePage, 1957). The 'barium-insoluble' fraction contained about 50% of the total cell phosphate and about 10% of the total carbohydrate. Most of the phosphate in this fraction was inorganic, but some of the organic phosphate was apparently in the form of a phosphorylated arabinose. The 'barium-soluble ethanol-insoluble' fraction contained about 40% of the total phosphate and 20% of the total carbohydrate. Hydrolysis and paper chromatography showed the presence of glucose and mannose. Glucose 6-phosphate was identified. The 'barium-soluble ethanol-soluble' fraction contained 75% of the total carbohydrate. This material was further fractionated on a column of charcoal–celite (Whistler & Durso, 1950). Most of the carbohydrate was eluted with water and was identified as glucose by several chromatographic systems. Elution of the column with 10% (v/v) ethanol removed at least three oligosaccharides. These were further purified by paper chromatography in ethyl acetate–pyridine–water (10:4:3, by vol.). The major oligosaccharide contained only glucose and had the chromatographic properties of $\alpha\alpha'$-trehalose in four solvent systems (Winder *et al.* 1967). The other oligosaccharides are now being examined.

There are several similarities between the above pattern and that obtained previously for mycobacteria (Winder *et al.* 1967): mycobacteria contain fairly large amounts of trehalose and appreciable amounts of glucose 6-phosphate, and evidence for phosphorylated arabinose has also been found in them.

A glycolipid containing $\alpha\alpha'$-trehalose has been found in *Corynebacterium diphtheriae*, but there has been no previous report on the presence of the free sugar in corynebacteria. Substantial amounts of free trehalose are thus present in corynebacteria, mycobacteria, streptomyces (Elbein, 1967) and propionibacteria (Stjernholm, 1958). Other similarities between these genera will be discussed.

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Phosphoglycopeptides from Yeast Cell Walls

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The major components of the yeast cell wall are mannan, glucan, and protein, which are present in the form of macromolecular complexes. Lampen (1968) suggested a structure for the cell wall in which the outer layer is made up of large mannan molecules held together by phosphodiester bonds. About 20% of the total mannan is present in an adjacent layer that also contains glucan and protein, and this layer appears to be covalently linked to the glucan network that gives the cell rigidity and its characteristic shape. The present report describes studies on the chemical composition of phosphoglycopeptides that are released from the outer layers of yeast cell walls by the action of Pronase.

Yeast cells (*Saccharomyces cerevisiae*, Guinness strain 1406) were suspended in water and disintegrated in the cold by shaking with glass beads for 1–2 min. Cell-wall fragments were isolated by