Structural Investigation of an Antibacterial Polysaccharide from Streptomyces virginia H03

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The chemical structure of a polysaccharide from the broth of cultured *Streptomyces virginia* H03 was investigated. There might be $1 \Downarrow 2$ and $1 \Downarrow 4$ and no $1 \Downarrow 6$ glycosidic linkages in the polysaccharide according to periodate oxidation and Smith degradation. Four fragments including 2,3,4,6-Me₄-Man, 2,3,6-Me₃-Gal, 2,4,6-Me₃-Glc, and 3,6-Me₂-Man were found in the methylated polysaccharide. Furthermore, the polysaccharide has a -Glc($1 \Downarrow 4$)--Man($1 \Downarrow 4$)--Gal($1 \Downarrow 3$)-linked backbone and a branch at the C-2 position of ($1 \Downarrow 2$)-linked mannose residues as determined by the method of nuclear magnetic resonance (NMR) spectroscopy. The assumed structure of the polysaccharide is

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 3)- -Glc(1 \Downarrow 4)- -Man(1 \Downarrow 4)- -Gal(1 \Downarrow]_n.

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-Man(1

Additionally, the polysaccharide has a wide antibiogram and was found to be most effective against *Bacillus subtilis*, *Staphylococcus aureus*, *Listeria monocytogenes*, and *Escherichia coli*.

Key words: Polysaccharide, Streptomyces virginia H03, Antibacterial Activity