

The preliminary study of extracellular polysaccharides secreted by fungi was studied from 11 species in 5 genera of edible mushroom. Eleven strains were isolated by tissue culture technique from fruiting bodies. All strains were grown in liquid Czapek's Dox medium and varied 4 kinds of carbon sources: glucose, sucrose, lactose and galactose. Five species gave high polysaccharide production in glucose, two species in sucrose, one species in lactose and one species in galactose. When classified polysaccharide based on their charge properties in nine species, five species were neutral polysaccharide and four species were acidic polysaccharide. Only glucose monomer was detected in each of complete hydrolysis sample.

The production of scleroglucan from S. rolfsii in 4 types of optimized carbon source medium; molasses, sucrose, non-hydrolyzed tapioca starch and enzyme hydrolyzed tapioca starch. In sucrose medium gave the highest of scleroglucan production 2.20%

The classification of polysaccharides were identified base on their charge properties. All scleroglucans produced from four type of carbon sources media were identified as neutral polysaccharide. The sugar analysis of produced scleroglucan, the amount of total sugar were 63-89% and the amount of glucose were 70-89% of calculated total sugar. The effects of temperature on water imbibition property of scleroglucan showed that when temperature increased up to 40 C there, the ability of water imbibition was decreased. Scleroglucans produced from varied type of carbon sources medium were detected the viscosity. From molasses, sucrose and non-hydrolyzed tapioca starch showed the value of viscosity in the range of 128.00-137.00 cp, scleroglucan from hydrolyzed tapioca starch medium showed 55.00 cp. The viscosity stability of scleroglucan solution were observed. They maintained the stability in sodium chloride concentration 0.0-2.0%, broad range of pH from 1.0-11.0 and the temperature range 10 -70 C. The determination polarity by electroendosmosis (EEO) method, it was failure because scleroglucan solution unable to form stable gel, even though increased the concentration of scleroglucan up to 3.5% than agarose gel.

The molecular weight of scleroglucans were determined from various carbon sources, molasses, sucrose, non-hydrolyzed and hydrolyzed tapioca starch by column chromatography with known molecular weight standard dextran. The molecular weight were estimated approximately 120,000 480,000 360,000 and 380,000 respectively, and when partial hydrolyzed in condition 2.0 M HCl 100 C at 1 hour, the scleroglucan produced from hydrolyzed tapioca starch has the molecular weight about 30,000.