Assay for transglycosylation reaction of xanthomonas campestris on carbohydrate sources

Abstract

Phytopathogenic bacterial Xanthomonas campestris causes rot disease in cruciferous plants, such as peppers, tomatoes, broccoli, and cabbage. On agar medium, this bacterial culture is able to produce extracellular biopolymer that can be utilized as an ingredient in food preparation that is known as xanthan gum. This polysaccharide can be applied in commercial industry as thickening agents, viscosifier, stabilizer, emulsifier and suspension agent. This study aims to determine ability of X. campestris culture in synthesizing such kind of a simple polysaccharide as a transfer product of transglycosylation reaction using extracelluler enzyme of this bacterial culture on several sources of carbohydrates, in order to study process of enzymatic synthesis of this xanthan gum. Transfer products were tested using thin layer chromatography and high performance liquid chromatography. The results showed that corn flour was the best substrate on formation of the transfer product compared to other sources of carbohydrate as its substrate. The result showed that corn flour could use xylose as its acceptor to produce the transfer product as amount of 0.47% compared to standard of xanthan gum.