

## **In Vitro Prebiotic Potential of Coconut Testa Flour Crude Polysaccharides on Lactobacillus sp**

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Coconut testa is removed from the white coconut kernel during manufacturing of coconut-based products without any usage. This study was conducted to investigate the prebiotic potential of crude polysaccharide extracted from coconut testa flour. Coconut testa flour was obtained from partially defatted and ground coconut testa removed after processing of coconut kernel. Five different local cultivars including Ran Thembili, Gon Thembili, Tall Tall, San Ramon and Commercial hybrid were used to determine the prebiotic potential. The extracted crude polysaccharides were chemically characterized using FTIR to identify the available functional groups. The FTIR spectrum showed the presence of functional groups like, alkanes, alkenes, aldehyde, phenol, alcohol, and glycosidic bonds. Further, peaks at  $\sim 1373\text{ cm}^{-1}$ , and  $\sim 1075\text{ cm}^{-1}$ , showed the presence of  $\beta$ -glucan while peak at  $1244\text{ cm}^{-1}$  showed the presence of  $\beta$ -1,4 glycosidic bonds. This indicated that the crude polysaccharide extracted from coconut testa flour could show prebiotic characteristics. The prebiotic potential of extracted crude polysaccharides were determined by evaluating the resistance to artificial human gastric juice and proliferation of *Lactobacillus* sp. on the crude polysaccharide. High resistance to artificial human gastric juice was identified with all cultivars. Highest resistance was shown by Gon Thembili cultivar while Tall Tall cultivar showed the lowest. Higher proliferation of *Lactobacillus* sp. was observed on crude polysaccharides rather than glucose. The results of prebiotic activity score of extracted crude polysaccharides were lower than commercial prebiotics, fructo-oligosaccharides and inulin with all the coconut cultivars except with San Ramon cultivar. Therefore, it is evident that coconut testa flour crude polysaccharides show prebiotic characteristics.

**Keywords:** *Coconut testa flour, Crude polysaccharide, Prebiotic potential, Probiotic proliferation, Lactobacillus sp.*