In silico study of efficiently producing fructooligosaccharides using a novel strain of *Fusarium* sp. HKF-74

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Introduction: Agricultural wastes are a renewable and huge biomass resource that can be effectively digested by a mix of carbohydrate-active enzymes released by fungal extracellular enzymes. Indentifying enzymes with innovative features to improve conversion processes in the manufacturing of lignocellulosic-based products is critical.

Methods: Potential isolates were screened for extracellular transfructosylation activity. For qualitative analysis HPLC has been performed. The whole genome sequencing was performed using NGS platform and genome annotation using GeneMark ES and Augustus. For CAZyme analysis, CAZyme annotation using dbCAN is in progress, all data in dbCAN will be generated based on the family classification from CAZy database.

Results: HKF-74 resulted in highest hydrolytic activity at the end of 96h which was found to be 17.52 U/mL and highest transfructosylation activity of 19.88 U/mL after 96h of incubation. Indeed, the qualitative analysis using HPLC proved that the strain HKF-74 is capable of producing different enzymatic activities. The whole genome sequencing was performed using NGS platform and genome annotation using GeneMark ES and Augustus. For CAZyme analysis, CAZyme annotation using dbCAN is in progress.

Discussion: Optimum bioprocess parameters for the enhanced production of prebiotic oligosaccharides from carbohydrate rich substrates such as pure sugars and agricultural wastes. In addition to the prebiotic produced which are of use in health supplement production, the enzymes can directly find potential application in prebiotic producing industries