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Extraction and purification of extracellular glucosyltransferase (GTFs) from *Streptococcus mutans* serotype C isolate (H5)

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These isolates were tested for production of extracellular Glucosyltransferase (GTF) through determination of their enzyme specific activity. All isolates were able to produce the enzyme *Streptococci* isolate (H5) which is identified as *Streptococcus mutans* serotype C which was selected as the best producible isolate for GTF with a specific activity of 2.6 U/mg. It was found that GTF of the chosen isolate (H5) was produced during the middle stationary phase (18-35 hours) and its maximal productivity was reached at 22 hours. Purification of *S. mutans* serotype (C) H5 GTF were done by ammonium sulfate, ion-exchange chromatography (DEAE-Sephacel column) and gel-filtration chromatography using Sepharose 6B column. The best percent saturation use for precipitating GTF by ammonium sulfate was 20-40% with specific activity 2.4 U/ml. Two purified GTF enzymes (GTF-I and GTF-II) were detected with specific activity 35.5 U/mg, 8.3 U/mg after 96.1 and 22.6 fold of purification, respectively with yield 17.2%. Determination of purified GTF (GTF-I, GTF-II) molecular weight was done by using gel-filtration chromatography (Sepharose 6B) column with presence of standard proteins. It was found that the molecular weights of GTF-I, GTF-II were 125819, 112201 Daltons, respectively.

Biography

Essam F A Al-Jumaily has the academic qualification of a PhD degree achieved in 1989 from the Biochemistry Department (Enzymology), Southampton University, UK. His research interests are microbial biotechnology, enzyme biotechnology, biosafety and biotechnology and purification of biotechnology materials with downstream production. He published 225 scientific research papers. He has supervised the dissertations and theses of 90 Graduate students, 30 PhD students, 50 MSc students, 9 Graduate Diploma students in different molecular research projects in Biotechnology. His scientific career spans over a period of 34 years during which he worked in Academic Teaching, Supervision, Scientific Administration and Consultancies. In 1999, he founded the Institute of Genetic Engineering and Biotechnology (IGEB) for Graduate studies in the University of Baghdad, under the Deanship of Professor Dr Ali A Al-Zaag. The IGEB has been recognized as one of Iraq's advanced research institutions.

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