

SEPARATION AND CRYSTALLIZATION OF DATE SUGARS ON SEMI-INDUSTRIAL SCALE

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New methods were developed to separate and crystallize glucose (B-D-glucopyranose) and fructose (B-D-fructofunariose) from date sugar (Debbis and liquid sugar) produced from the fully mature Zahdi dates. These methods depend on utilization of electronic computer to find the optimal conditions of separation, and then seeding the concentrated sugar with and without addition of sodium chloride. Accordingly, the percentage of separated glucose in aqueous medium were 69.8% and 45.9% of the total glucose, respectively. Separation efficiency was increased to 72% when seeding was performed in alcoholic medium. For the purpose of fructose crystallization this method was modified to produce syrup that contained 85% fructose which was subsequently crystallized to produce 81% yield and 94.4% purity as indicated by high performance liquid chromatography (HPLC) and L.R. spectroscopy. Time required for fructose crystallization was five days in alcoholic medium under two systems of temperature control i.e. isothermal and linear cooling crystallization. It was concluded that there was a possibility of obtaining crystallized sugar products i.e. dried glucose or concentrated syrup and for the first time crystallized fructose was obtained, with high efficiency, simple and economic method.