Abstract

Leuconostoc bacteria were isolated from local pickled cabbage (*Brassica oleracea capitata*) and identified as *Leuconostoc mesenteroides* by biochemical and physiological .The local isolated *L. mesenteroides* bacteria under the optimal conditions of dextran production showed that, the highly production of dextran was 7.7g achieved by using a modified natural media comprised of 100ml whey , 10g refined sugar, 0.5g heated yeast extract, 0.01g $CaCl_2$, 0.001g $MgSO_4$,0.001g $MnCl_2$ and 0.001g NaCl at 6.0pH and 25℃ for 24 hr of fermentation and by using$1\chi10^6$ cell/ml as initial inoculums volume. Some of the essential properties of dextransucrase enzyme have been studied. The crude extracted enzyme of local *L.mesenteroides* bacteria showed that, the optimal pH for high stability was 4.0-5.5 and the enzyme was thermally stable at 20-30° C for 30 min. Dextran synthesis by using free cells enzyme showed highly efficient productively ,5.48µg/ml by using 4.484 unit/ml, while it was 8.40 µg/ml when 8.97 unit/ml has been used.

Dextran produced by local isolated *L.mesenteroides* and was identified by Fourier Transform Infrared (FTIR) Spectroscopy. The identified functional group, OH, C-H, C-OO, C-O and C-C were found to have 3410, 2929, 1643, 1149 and 1033 cm^{-1} respectively. These results were similar to that of standard dextran B , under the same conditions. Some physical properties (color, solubility and viscosity) of synthesized dextran were studied in order to compare with that of standard. The gel filtration technique has been used to identify the synthesized dextran and was found to be tow type of dextran have a molecular weight between 150000-200000 daltons and 60000-90000 daltons.

Some applications in food technology (Ice cream,Loaf, Ketchup and Beef preservation) have been performed with processed dextran .The results showed examined product as related to color , solubility and viscosity for both ice cream and ketchup in addition to softness ,puffiness in loaf core and show high

efficiency as cryoprotective agent in beef preservation at -18C with out being freezed.