Thesis Title Pilot Plant Production of Polysaccharide from Tamarind Kernel Powder.

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ABSTRACT

Tamarind Seed Polysaccharide (TSP) was prepared by extraction, filtration by filter press and dried by 3 different methods. Firstly, the filtrate was precipitated with 1.5 volumes of 95% ethyl alcohol and dried at 50-60°C, having a yield of 44.17 %. The second and third methods were drum and spray dried giving yields of 31.60 and 25.92 % respectively. It was shown that production cost of the three methods were 1960, 670 and 955 bahts (per kilogram) for alcoholic precipitation, drum dried and spray dried methods respectively. Particle size analysis showed that the size range of the products were between 53-90 A°, all of which were in the same range. There were no significant differences in viscosities among products

from the three methods. The effects of concentrations and temperatures on viscosities of TSP 1 and TSP 2 dispersions were similar to the characteristic of pseudoplstic flow. The effect of pH on the rheological properties were investigated. It was shown that viscosities of 2 % TSP 1 and TSP 2 dispersions at pH range of 4-8 did not alter but after prolonged storage the viscosities decreased with the formation of sediment whereas dispersions of 4 % TSP 1 and TSP 2 gave higher viscosities without sedimentation. Drum drying method could be a method of choice for pilot plant production since higher yield is obtained and is more economic. A suitable concentration of TSP 1 and TSP 2 were not less than 4 %. Modification of production may be carried out in the preparation process by separation of a suitable particle size range of the polysaccharide before filtration of the supernatant by filter press in order to obtain uniform size range of the particles and reduce batch to batch variation.