Purification of Syrup by Cooling crystallization

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In the case of Syrup synthesized by enzyme reaction, a low purity of 20 to 30wt% is obtained. A purification process of separating into high purity is required.
The purification method uses a crystallization method using an organic solvent and chromatography. In the case of chromatography, it takes a long time to purify and the scale of the plant is not appropriate. In order to remove the impurities from the syrup to obtain purified crystals, A step of concentration into a supersaturated state about the solubility is required. In general, the supersaturation is influenced by impurities, temperature, concentration, crystallizer type, stirring speed and so on.
In this study, cooling crystallization was carried out using organic solvent. The moisture in the raw material was evaporated and concentrated material was used. The ratio of the organic solvent to the water contained in the syrup was 84wt%~95wt% and proceeded at a constant temperature profile and stirring speed. The products obtained from the experiment were qualitatively analyzed by Raman and DSC. The crystal grew up to 400μm and the crystal shape was needle-like. The recovery rate was 47 to 84%.