

The investigation on the optimal culture conditions and the ice nucleating activity of bacterium *Xanthomonas translucens* KCTC 2751

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Abstract

The optimal culture conditions for ice nucleating activity and cell growth of *Xanthomonas translucens* KCTC 2751 were investigated. The optimal initial pH and temperature for cell growth and ice nucleating activity were 6.5 and 25°C, respectively. The optimal culture medium for ice nucleating activity was composed of 1.0% maltose, 1.4% yeast extract, 0.8% digested of gelatin, and 0.03% KCl in distilled water. Freezing operations carried out on distilled water showed that the degrees of supercooling were -7.90°C without ice nucleators, -1.56°C with silver iodide as a commercial ice nucleator, and -1.36°C when *Xanthomonas translucens* KCTC 2751 were added. During progressive freeze-concentration assays, the addition of *Xanthomonas translucens* KCTC 2751 led to a lower saccharose in the crystals, while the cells mainly accumulated with the saccharose in the concentrated phase.

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