

## **Abstract**

Different factors which affect the stability of calcium alginate gel beads entrapping viable cells during fermentation were investigated. It was found that among others, the initial population of cells per ml of gel beads, the length of period of incubation in CaCl<sub>2</sub> solution, and the concentration of sodium alginate used for the immobilization were the most important factors affecting the stability of the gel beads during fermentation. By using an initial cell population of about 10<sup>5</sup> cells per ml of 2.0% sodium alginate, and incubating the beads for at least 22 h in a CaCl<sub>2</sub> solution after immobilization, the percentage of beads which developed cracks during fermentation was highly reduced. Also, without the addition of CaCl<sub>2</sub> into the fermenting broth, the gel beads were stable for nine consecutive batch fermentations.

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