

## **Optimization of fish gelatin-alginate-genipin as encapsulating matrices for probiotic application using FCCD-RSM**

### **ABSTRACT**

The optimal composition of fish gelatin-alginate-genipin to encapsulate *Bifidobacterium pseudocatenulatum* G4 was studied. The Face Central Composition Design-Response Surface Methodology (FCCD-RSM) was employed to determine the optimal ration of the matrices in order to obtain high in encapsulation yield (%) and beads strength. Results indicated that optimized matrices could increase the entrapped viable cells and beads strength. The optimal combination of encapsulating matrices was found to be 12.57 % for fish gelatin combined with 5 % alginate and 19.1 mM genipin. Verification experiment confirmed the prediction with low value error and gave indication a good performance prognosis of the optimal formulation.

**Keyword:** Optimization; FCCD-RSM; Encapsulation; Probiotic; Fish gelatin; Alginate; Genipin