

OPTIMIZATION USING RESPONSE SURFACE METHOD IN TEMPERATURE AND PH OF A FOOD SUPPLY CHAIN

VISHNU PARAKKAL¹, JOHN WESLEY, S² & ELIZABETH AMUDHANI STEPHEN³

^{1&2} M. Tech Food Processing and Engineering, Department of Biosciences and Technology,
Karunya University, Coimbatore, Tamilnadu, India

³ Associate Professor, Mathematics, Karunya University, Coimbatore, Tamilnadu, India

ABSTRACT

To develop a framework for automated optimization of stochastic simulation models using Response Surface Methodology. The framework is especially intended for simulation models where the calculation of the corresponding stochastic response function is very expensive or time-consuming. One of the most challenging tasks in today's food industry is controlling the product quality throughout the food supply chain. In this paper, we integrate food quality in decision-making on production and distribution in a food supply chain. We provide a methodology to model food quality degradation in such a way that it can be integrated in a Response surface model used for production and distribution planning. The resulting model is applied in an illustrative case study, and can be used to design and operate food distribution systems, using both food quality and cost criteria.

KEYWORDS: Response Surface Method & Food Supply Chain