



**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS**

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Thesis Title: Development and Optimization of Ready-to-Cook Indian Summer and Winter Vegetable Soup Mix Formulations

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SHORT ABSTRACT

This Ph.D. thesis emphasizes upon the utilization of abundant and nutritious Indian summer and winter vegetables along with indigenously produced cereal and legume based thickening agents and their compositional optimization in terms of the sensory and nutritional characteristics of the dried vegetable soup formulations. Overall, the thesis targeted the development of the novel score deviation sensory evaluation technique for effective identification of best summer and winter vegetable combinations for the soup mix formulations. Firstly, the thesis targeted the stage-by-stage optimization of soup mix formulations which involved identification of best summer and winter vegetable mix combinations for soup mix formulations followed by trial-and-error experimental methodology-based optimization of soup mix formulations through the comparative assessment of sensory evaluation techniques and subsequent nutritional characterization. This was followed with the application of response surface methodology-based mixture model design towards the optimization of only dried vegetable mix constitution with respect to sensory scores and antioxidant activity. Finally, the thickening agent composition constituted with legume and cereal based thickening agents was optimized in terms of the sensory and nutritional characteristics. The developed formulations were characterized for proximate, nutritional, in-vitro nutrient bio-accessibility, rheological and storage stability characteristics. The optimal summer and winter vegetable soup mix formulations developed in the study affirmed significantly higher nutritional composition and sensory acceptability. Accordingly, the significant inferences being obtained in the Ph.D. thesis in terms of the sensory evaluation and optimization techniques are anticipated to further customize and conveniently address the most stringent subjective challenges in dried vegetable soup mix formulations and for optimality of both sensory and nutritional characteristics.