Formulation of a Natural Flavor Enhancer Based on Glutamic Acid and Study of Sensory Properties

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The main objective of this study was set as formulation of a natural and nutritious flavor enhancer using locally available ingredients with having umami taste as a replacement for Mono Sodium Glutamate (MSG). Mushrooms, Tomatoes, Carrots and Garlic were dehydrated and powdered prior to be used as ingredients. These ingredients were mixed according to Taguchi L8 design by changing the ratios to form eight different formulations. Eight different formulations were evaluated based on seven point hedonic scale. Formulations were added into dhal curry and sensory tests were carried out with dhal and bread. Thirty untrained panelists were contributed in the sensory evaluation and samples were analyzed for Appearance, Taste, Odor, Mouth feel and Overall Acceptability. Results were analyzed using MINITAB 14 for Kruskal Wallis non parametric analysis and Mann-Whitney test. Based on the results of two sensory evaluations, sample 767 formulae (Tomato 2: Mushroom 2: Carrot 1: Garlic 1) and 671 formulae (Tomato 2: Mushroom 1: Carrot 2: Garlic 2) were selected for the third evaluation where Formulae 671 showed the best results. Considering overall results of three sensory evaluations sample 671 was selected for the final product development. Out of all the sample, selected formulae (Tomato 2: Mushroom 1: Carrot 2: Garlic 2) contains the highest level of tomato, carrot and garlic along with the least amount of mushroom compared to other samples. Development of a flavor enhancer using natural ingredients as a substitute for MSG would be a great achievement as far as health and the natural taste of the food is concerned. In conclusion, sensory evaluations for eight different ratios of mixing above ingredients revealed that formulae 671 gave the best composition that could be a good replacer for MSG.

Keywords: Mono Sodium Glutamate, Flavor, Sensory Evaluation