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Optimization of bread as influenced by cassava (*manihot esculenta crantz*) – wheat (*triticum aestivum*) combination with alpha-amylase and xylanase

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The combination action of α -amylase, xylanase and composite flour was analysed to determine their effects on the sensory quality of the bread through optimization using Response Surface Methodology (Central Composite Design). Fifteen bread formulations containing different concentrations of α -amylase (0, 0.0005 and 0.003% w/w), xylanase (0, 0.001 and 0.003% w/w) and composite flour (15, 30, 45%w/w) were used in the analysis. The study revealed that the addition of α -amylase had significant influence on the response of crust color, crumb structure, flavor and general acceptability of the bread. The presence of xylanase causes a change on the response of crust color, crumb texture and the general acceptability only, however, its crossproduct interaction with composite flour level affect the response of crust color, crumb texture and structure, flavor so as the overall acceptability of the product. The synergistic effect of α -amylase and xylanase displayed an influence positively on the overall acceptability of the bread. The optimum formulation set at acceptability rating of >7.20 on the 9-point Hedonic scale was determined at 38% composite flour with 0.002% α -amylase and 0.0012% xylanase considering a cost of P41.14 per 421.27g of loaf. The observed acceptability mean for all sensory attributes of the formulation was not significantly different with the predicted acceptability mean value of the model according to verification test. This formulation was not significantly different with the commercial bread available in the local market of Baybay, Leyte based on the consumer acceptance results with children and adults as potential target market.

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