ABSTRACT

Production of a Simulated Frankfurter Using Pigeon Pea (*Cajanus cajan*) Protein Isolate

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Protein was isolated from whole dry pigeon peas (*Cajanus cajan*) by solution at pH 9.0 for twenty minutes at room temperature (30°C), followed by acid precipitation of the liquid extract at pH 4.4 and centrifugation. The protein was combined with fat, water, seasoning and wheat gluten to form a simulated frankfurter. Frankfurters made without gluten experienced structural failure. An improvement in structure was observed with an increase in the percentage of wheat gluten. The addition of 90% gluten gave a product of desirable texture, appearance, pH, moisture to protein ratio and nutritional value, as determined by physical and chemical analyses and sensory evaluation (Taste tests).

When the fat percentage was varied by increasing concentrations, structural failure resulted above 20% fat, as protein failed to coat the fat globules adequately. Ratings of the Taste panel were used to develop the ideal product with the desired gluten and fat content, colour and flavour.

Analysis of Variance of Taste Tests covering a wide cross section of the population proved that the product was acceptable. Paired preference tastes were used to compare the pigeon pea simulated frankfurter with Vegelinks and a Chicken Frank. Vegetarians preferred the pigeon pea simulated frankfurter to Vegelinks. Meat eaters showed a preference to chicken franks.

Cold storage temperatures ($^{-}10°C$-$^{-}15°C$) were more effective in controlling the growth of micro-organisms in the simulated frankfurter than refrigeration temperatures (4°C-7°C) over a four week period. There was little correlation between objective and subjective tests for Juiciness (36%) but better correlation between objective and subjective tests for Texture (64%).