

Pidan is a nutritious delicatessen, of Chinese origin Protein in Pidán are in the form of small molecules which are easily digested and absorbed. Furthermore, Pidán is germfree. But most of the Pidán manufactured and distributed in the market contain too high lead content. The objective of this research was to develop a method of producing Pidán with low lead content in the product to safeguard consumers of the product from lead poisoning. Chemicals which may be used to coagulate proteins in egg were investigated. Those which may form stable gel of protein and safe for consumption were selected by factorial design of experiments. Rates of diffusion of reagents through the shell and membrane of duck's eggs and hen's eggs at 4°C and at room temperature of approximately 30°C were also examined. Appropriate freshness of raw eggs to be processed and possible means of reducing processing time were investigated. Properties of Pidán were analysed with respect to the content of ions, moisture, protein, total microbial population, storage life, and organoleptic properties.

The results from this research indicated that the reagents which could coagulate proteins in eggs were mixture of zinc chloride, ferrous sulphate, aluminium hydroxide, calcium carbonate, sodium carbonate and sodium chloride, at 10 gram per litre except urea use in saturated concentration and tea at 1-2 gram per litre. To consider possible interactive effects of five chemicals regarded as safe for consumption, namely, sodium carbonate, calcium carbonate, zinc chloride, tea leaf and common salt, 2^5 factorial design of experiments was used. Seven out of the thirty two experimental conditions could give Pidan like product. There were only four out of the seven experimental conditions, however, gave product with acceptable quality and properties which were indifferent at 95% confident level. Analyses for the mean effects of the chemicals used indicated that interactive effect between calcium carbonate and zinc chloride was the strongest. Interactive effects among sodium chloride, sodium carbonate, and tea leaf were also significant respectively. Diffusion of sodium chloride through the shell of duck's eggs was better than that of hen's egg at both 4°C and room temperature by 46.5% and 14.5% respectively. Treatment of egg shell with 1% v/v acetic acid for 30 minutes may shorter the processing time required by 20%. The raw eggs to be used for Pidan production should be so fresh that they should not be more than 15 days old. Contents of moisture in egg white gel of Pidan from this research were about 76.45-80.13% w/w, in yolk were about 52.00-55.53% w/w, sodium chloride in egg white gel were 1.10-1.40% w/w, in yolk were about 0.60-0.80% w/w, protein in egg white gel were 10.26-11.03% w/w, in yolk were about 12.05-13.98% w/w, calcium ions in egg white gel were about 52.15-84.10 ppm., in yolk were about 122.50-

172.20 ppm zinc ions in egg white gel were 30.09-32.20 ppm., in yolk were about 42.05-49.08 ppm. Contents of lead ions and total microbial count were nil. When Pidān was stored for 4-8 months moisture decreased by 7-8%.