

EVALUATION OF CONSUMERS PREFERENCE FOR FRESH FRIED EGG AND RECONSTITUTED FRIED EGG POWDER

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ABSTRACT

The study was carried out to evaluate consumer preference for fresh fried egg and reconstituted fried egg powered. The experiment was carried out at Animal Product and Processing lab of the Department Animal Science, Federal University Dutsin-Ma. One hundred and eighty (180) freshly laid eggs were collected from the Departmental farm. Sun drying, grinding and sieving techniques were used to convert Ninety (90) out of the 180 samples fresh egg from liquid to powder form. The reconstituted fried powdered egg and fresh fried egg was presented to 50 semi trained panellists in a random manner. Likert scale and a 6-point hedonic scale were used to obtain data for preference and appearance test. The results indicated that 68.4% liked the appearance of fresh fried egg while 31.6% liked the appearance of powdered reconstituted fried egg. Also 78.9% preferred the appearance of fresh fried egg while 21.10 % preferred the appearance of both fresh and powdered fried egg in the same manner. Hence it is concluded that the fresh fried egg is highly appealing to consumers than the powdered reconstituted fried powdered egg.

Keywords: Sun drying, Egg powdered, Fresh egg, Likert scale and Hedonic scale

INTRODUCTION

The world egg production reached 65 million tons (Froming, 1998), corresponding to 1140 billion of table eggs produced. The average number of layers housed worldwide is projected in 4.93 billion (IEC, 2012); with China ranked as top leader and an egg production of 28mt (43%) and 800-1000 million of laying hens housed. European Union is the second in the rank, with 6.5mt (10%) of shell eggs produced and 290 million layers. This is followed by USA with 5.4mt (8.3%) and 276 million layers, India with 3.4mt (5.4%) and 133 million layers, Japan with 2.5mt (3.8%) and 121 million layers, Mexico with 2.38mt (3.7%) and 118 million layers and finally, Brazil with 1.9mt (2.9%) and 89 million layers, ranking the 7th position. In Nigeria, where egg production is low, eggs are easily packaged and distributed without any preparation before consumption apart from cooking the product in one way or another. To maximize income, an egg farmer must ensure that his maximum supply of egg coincides with the minimum supply of egg from local sources. The rapid expansion in the poultry industry in Nigeria, it is very easy to go from a deficit to a surplus supply as government policies inject large amounts of capital into poultry production, it would be easy for farmers to be producing these eggs and go bankrupt as a result of market forces and lack of basic storage and processing facilities. Another problem associated with Fresh eggs are however, difficult to transport because of their bulkiness, fragility, and highly perishable nature (Frazier and Westhoff, 1988). Transporting eggs in powder form will provide a near complete solution to these problems. Therefore, a careful assessment of a processed egg powder for preference will go a long way in providing information when egg powder are made available over fresh egg and this will help farmers to reduce losses by simply converting the eggs into egg powder.

MATERIALS AND METHODS

The experiment was carried out at Animal Science Product and Sensory laboratory Department of Animal Science Federal University Dutsin-Ma. Dutsin-Ma, located in the North-western Nigeria. Latitude 12°27'18" North and 7°29'29" East and 605 meters above sea level with an average rainfall of 750mm.

Data collection and Preparation of test materials/sensory.

Egg powder was reconstituted with water using a recommended 2 table spoons of egg powder to 3 table spoons of water equivalent to one whole egg. Twenty (20) table spoons of egg powder were dissolved into water, allowed for 5 minutes to enable the powder dissolve properly before whipping. Whipping was done for 5 minutes using a fork. A non-stick frying pan was placed on a gas burner and 50ml of soya oil was poured into the pan, allowed to heat for 1 minute after which the egg powder mixture was poured into the pan and allowed to fry for 7 minutes. The various prepared samples of both fresh and powdered reconstituted fried eggs was placed into petri dishes and presented to semi trained panellists along Likert scale and a 6- point hedonic scale were used obtain data for preference and appearance test

Data Analysis

Data from the experiments will be subjected to analysis of variance using general linear model procedure of SAS (2000). Significant means will be separated using Duncan Multiple Range Test (DMRT).

RESULTS AND DISCUSSION**Appearance of fresh fried and powdered reconstituted fried egg**

The result in Table 1. indicates that 68.4% likes the appearance of fresh fried egg while 31.6% likes the appearance of powdered reconstituted fried egg.

Table 1. The appearance of fresh fried egg verses powdered reconstituted fried egg

Parameters	Frequency	Percentage%
FFE	13.00	68.40
PRFE	6.00	31.60
Total	19.00	100.00

FFE= Fresh Fried Egg

PRFE = Reconstituted Fried Powdered Egg.

The result in Table 2. Indicates that 78.9% likes the appearance of fresh fried egg while 21.10 % likes the appearance of both fresh and powdered fried egg.

Table 2. The appearance of powdered reconstituted fried egg versus fresh fried egg

Parameters	Frequency	Percentage%
FFE	15.00	78.90
PRFE	4.00	21.10
Total	19.00	100.00

FFE= Fresh Fried Egg

PRFE = Powdered Reconstituted Fried Egg.

The results in Tables 1 and 2 are clear indications that consumers prefer the physical appearance of fresh fried egg over the powdered reconstituted fried egg which may be as a result the browning nature of the powdered egg after frying. Also during the processing, the change of state of the egg from liquid to powder and the change to liquid might have certainly tempered with the physical properties in terms of color and texture and mouth feel just as it was reported by (Ihekoronye and Ngoddy, 1982; Manay and Shadaksharaswamy, 2005).

Preference of fresh fried and powdered reconstituted fried egg

The result in Table 3 shows the Preference of fresh fried egg over the powdered reconstituted fried egg.

Table 3. Preference of fresh fried egg and powdered reconstituted fried egg

Parameters	Texture	Saltiness	Bitterness	Sourness	Aroma
FFE	8.96a	4.18	0.98	1.52	8.08
RFPE	3.82b	3.30	2.26	1.88	8.63
SE	1.04	0.87	0.58	0.76	1.09

ab = means with different superscript differed significantly.

SE = Standard error,

FFE = Fresh fried egg

RFPE = Reconstituted fried powdered egg

The result in Table 3. Indicate that fresh fried egg and powdered reconstituted fried egg has no significant difference ($P \leq 0.05$) in terms of saltiness, bitterness, sourness and aroma. The fresh fried egg texture differs significantly ($P < 0.05$) indicating a greater texture preference than that of reconstituted fried powdered and this may be attributed to the denaturing nature of the protein in egg during the egg powder production affecting the solubility index of the egg powder and this is in line with the findings of Potter and Hotchkiss (2006) who reported that level of denaturation do affects the solubility index which is a physical attributes of protein. Similar reports by Wong and Kitts (2003). The moisture retention ability do affects the physical quality of powdered egg product.

CONCLUSION AND RECOMMENDATION.

The fresh fried egg is highly appealing than the powdered reconstituted fried egg. Powdered egg is also preferred based on its preference. Egg powder can be used as food and included in our domestic food ingredients. Further research should be carried out on the influence of heat on the egg nutritional content.

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