ASSESSMENT OF CONSUMERS AWARENESS AND ATTITUDE TOWARDS POWDERED EGG

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ABSTRACT
Assessment of consumers awareness and attitude towards powdered eggs (albumen, yolk and whole), was determined in this study. A dehydrator was used in drying the eggs. The fresh liquid eggs yielded 5g, 10g and 15g of powdered albumen, yolk and whole eggs respectively. As drying of egg is a successful way of solving egg glut problem as well as value addition, a purposive survey of 120 respondents was randomly conducted at ABU quarters using a structured questionnaire to determine consumers' awareness or acceptability on powdered egg and their attitudes towards quality attributes of egg products. Data collected were analyzed using Statistical Package for Social Sciences (SPSS). Only 5.8% have knowledge about powdered egg and its utilization and 15.1% were aware that powdered egg exists. 67.5% of the consumers did not care if the product is of fresh or powdered when buying, hence there is market potential to powdered egg as 66.7% were willing to buy powdered egg products even if not certified by a regulatory body, hence there is market potential for powdered egg and products. It could be recommended that, more awareness on processing, marketability and utilization of powdered egg should be done through extension services to producers and consumers.
Key words: Fresh and Powdered eggs (albumen, yolk, whole), awareness, attitude

INTRODUCTION
Egg is an affordable nutrient-rich food commodity that contains highly digestible proteins, lipids, minerals, and vitamins. The high content of highly bio-available protein in eggs is of great benefit to human nutrition (Fisinin *et al.,* 2008). The quality of protein in eggs is used as the standard for measuring the quality of other food proteins. Eggs are used in polymer, paint, ink and paper making (Audic *et al*., 2005). Specific protein components of the hen's egg are associated with diverse biological properties, which include antimicrobial activity, immune modulatory, anticancer, and antihypertensive activities, and antigenic or immunologic characteristics (Li – Chan *et al*.,1995; Mine and Kovacs-Nolan, 2006).

Eggs do not stay long at ambient temperature, as it is vulnerable to microbial spoilage. Processing protects it against spoilage and increases its value and shelf life. Shell eggs are however, difficult to transport because of their bulkiness, fragility, and highly perishable nature (Frazier and Westerhoff, 1988; Jay, 2000). Egg in powder form, provides a near complete solution to these problems. For many years, eggs were marketed primarily as shell eggs, but in recent years, egg consumption in the form of egg products has increased (Brennan, 2005). Egg glut is one of the major problems of egg farmers, especially during the hot dry season, hence egg perishes. Drying

is a successful way of preserving eggs, and the egg drying industry has developed over the years. However, there is lack of consumer awareness on powdered egg and its utilization.

MATERIALS AND METHODS

Location of the Study

The dehydration of the eggs was conducted at the Food Technology and Home Economics Department of National Agricultural Extension and Research Liaison Services Ahmadu Bello University Zaria, while questionnaire survey was carried out at ABU staff quarters.

Sample Preparation

180 fresh, cleaned, good quality eggs of Shika brown hens was sourced from the poultry farm of National Agricultural Extension and Research Liaison Services (NAERLS), ABU, Zaria Livestock Department demonstration farm. The eggs were washed, dried, broken and separated into albumen and yolk using a simply local yolk separator. The eggs were whipped up using blender for a homogenised product. Then the egg slurry of albumen, yolk and whole eggs were poured into sheets attached to dehydrator(PRESTO Dehydro digital electric food dehydrator 06301) and set at 62.8°C and allowed to dry for about 16 hours, 19 hours and 24 hours for the egg white (albumen), whole egg and yolk respectively, then all ground into powder.

Consumer survey: A structured survey questionnaire was used to collect data at ABU staff quarters. The data were collected randomly and analyzed for of descriptive statistics (percentages) using SPSS (version 20.1). A house to house contact with 120 respondents was done. In all 120 respondents, samples of powdered egg products were taken to the consumers for one on one contact.

Results

Consumers' Awareness and Attitude on Powdered Egg

Table 1 presents consumers awareness and attitudes on powdered egg and their willingness to buy powdered egg. There was little awareness on powdered egg, 18(15.1%) were aware while 102(84.9%) were not aware of powdered egg. The result also revealed that 7(5.8%) respondents had knowledge on powdered egg usage while 113(94.2%) had no knowledge on its usage. However only 39(32.5%) respondents cared to use egg product whether fresh or powdered, while 81(67.5%) did not care whether the egg product is fresh or powdered. Moreover, 94(78%) are willing to buy powdered egg, while 26(21.7%) are not willing to buy powdered egg. The result also indicates that 40(33.3%) respondents were still willing to buy powdered egg even if it is not certified by a quality and safety regulating agency, while 80(66.7%) are not willing to buy unless if the powdered egg is certified.

Table 1: Consumers' Awareness on Powdered Egg

Parameter	Yes	No
APE	18(15.1%)	102(84.9%)
Knowledge on usage of Powdered Egg	7(5.8%)	113(94.2%)
C F/P	39(32.5%)	81(67.5%)
WB PE	94(78.3)	26(21.7%)
WB PE ENC	40(33.3%)	80(66.7%)

APE= Awareness on powdered egg, **C F/P=** care if product is fresh or powdered, **WB PE**= willing to buy powdered egg, **WB PE ENC**= willing to buy powdered egg even if not certified

Products Yield

The yield of albumen, yolk and whole egg powders per egg of about 65g obtained from the use of dehydrator processing method amounted to 5g, 10g and 15g which translated to 7.69%, 15.58%, and 23.08% respectively as shown in Table 2

Table 2: Yield of processed albumen, yolk and whole egg powders (g, %) per 65g egg

Yield	G	%
Albumen	5	7.69
Yolk	10	15.38
Whole egg	15	23.08

Discussion

The result indicates that there was little awareness on powdered egg among egg consumers in ABU staff quarters, majority of the respondents did not have knowledge on powdered egg and its usage despite the fact that a reasonable percentage of them were aware of its existence. The higher percentage (67.5%) of the respondents' attitude towards buying egg product of either fresh or powdered indicates acceptability of the powdered egg. All they are after is just egg, it does not matter whether it is fresh or powdered. More so, the study revealed that powdered egg has marketing potential especially if it is standardized. In a study conducted by Mnyandu (2014), it revealed that, consumers are willing to be utilising powdered egg with time so as to become more familiar with it. It was reported that none of the respondents in rural Mkhambathini were familiar or had knowledge of egg powder. However, focus group discussions revealed that respondents were willing to learn more about egg powder in relation to producing it at a household level (Khoza 2014). The yield of the whole egg (23.08%) was similar to that reported by Abdullahi (2016) using oven dried chicken eggs and the one reported by Daramola 2018. These could probably be attributed to the source of the eggs which could be from layers of same breeds. It also reveals that a reasonable amount of egg powder products (albumin,yolk and whole powder) could be obtained when an egg is processed.

Conclusion and Recommendation

From the findings of this study, it is concluded that out of 120 respondents, 15.1% were aware of powdered egg, and only 5.8% had knowledge on powdered egg utilization. When buying and consuming eggs, 67.5% out of 120 respondents did not care whether the product is of fresh or powdered product, so also there is marketing potential for powdered egg as 66.7% are willing to buy powdered egg.

More awareness on processing, utilization and marketing of powdered egg through should be created through extension services to egg producers and consumers as egg solution to egg glut usually experienced during certain periods of the year in Zaria.

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