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Development of Healthy Organic Sardines Style

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Abstract: Poultry farming and egg production have been considered as the most progressive animal enterprises today in the Philippines. Aside from poultry and egg production, the country is also one of the main producers of fish sardines. This study aimed to develop and test the acceptability of organic egg sardines. The researcher made use of the developmental type of research to achieve the desired end product. Based on the acceptability test conducted, the product is well accepted by the community in terms of appearance, taste, texture, odor, and mouthfeel. Hence, the product may be used as a good substitute for commercial fish sardines in the market.

Keywords: *Organic, egg, and sardines*

I. Introduction

Poultry farming is the raising of domesticated birds such as chickens, turkeys, ducks, and geese for the purpose of farming meat or eggs for food. Poultry is farmed in great numbers, with chickens being the most numerous. More than 50 billion chickens are raised annually as a source of food for both their meat and their eggs. It has been noted that poultry farming and egg production are the most progressive animal enterprises today in the Philippines.

Aa a result of chicken poultry, the egg is abundant in the country. Eggs have already been a part of the Filpino dietary requirement. Eggs are a very good source of inexpensive, high-quality protein. More than half the protein of an egg is found in the egg white along with vitamin B2 and lower amounts of fat and cholesterol than the yolk. The whites are rich sources of selenium, vitamin D, B6, B12 and minerals such as zinc, iron, and copper. Egg yolks contain more calories and fat. They are the source of cholesterol, fat-soluble vitamins A, D, E, and K and lecithin - the compound that enables emulsification in recipes such as hollandaise or mayonnaise.

Food and nutrition experts from the Food and Nutrition Research Institute (FNRI), the chief dietitian of the Philippine Heart Center, and representatives of Nutritionist-Dieticians' Association of the Philippines all agree that daily egg consumption does not pose any risk to people with normal health [1].

Aside from the poultry industry, the country is also surrounded by a vast amount of bodies of water, which makes it ideal for fishing. One of the most predominant industry in fishing is the production of sardines. Sardines are tiny fish with a radiating silvery exterior and are about 6 to 12 inches in length. They are a species of fish that gather in tightly knit schools and are known to consume great quantities of plankton or zooplankton/animal plankton. Sardines as animal species are part of the Clupeidae herring family of fish. Their etymology originates from the Italian island of Sardinia [2]. These are lower-tier fish of the aquatic food chain, commonly abundant in both the Atlantic and Pacific oceans, as well as most parts of the Mediterranean Sea. Sardines serve a variety of purposes in the underwater ecosystem.

Sardines are known as food that primarily cater to human nutrition. Sardines here in the Philippines are definitely a common household dish. Sardines are an incredibly popular and go-to dish because of the fact that it takes incredibly minimal means when it comes to preparation and serving [3]. Sardines in the Philippines is a dish that is widely consumed across each household regardless of class. There are many distinct and unique ways to prepare and serve sardines, with each country carrying their own variations in recipes.

Although, fish sardines have been a popular food among Filipinos, it has been a common practice to combine the egg with sardines. One of the most nutrient-packed typed of an egg is an organic egg. Organic egg production is the production of eggs through organic means. In this process, the poultry is fed organic feed. According to the United States Department of Agriculture, organic means that the laying hens must have access to the outdoors and cannot be raised in cages.

Organic foods refers to foods that are grown organically and are usually processed into value-added products, and these include agricultural products such as fruits, vegetables, grains, dairy products, and meat. Organic foods are safer and more nutritious, but they command a higher price in the market [2].

Although sardines are considered as a common household dish cost has always been a common ground for consideration, some marginalized Filipinos often serve egg and tomatoes as a substitute for sardines. With this issue in mind, the researcher was propelled to develop an organic egg sardine.

Objective of the Study

The study aimed to develop organic egg sardines.

Specifically, the study aimed to:

1. develop a nutritious and affordable dish for the Filipino people
2. test the acceptability of the development project using product sensory evaluation.

Scope and Limitation

The study will focus on the development of egg sardines and shall only consider organic ingredients in the development of the dish.

II. Related Literature

Health Consciousness

Health consciousness best describes those "consumers who are aware and concerned about their state of well-being and are motivated to improve or maintain their health and the quality of life" (Kraft and Goodell, 1993) [4]. These consumers have the tendency to prevent ill health by engaging themselves in healthy behaviors. Such individuals tend to be aware of and involved with nutrition and physical fitness**.**

The extensive amount of the research that is carried out into the relationship between organic food and health defines „health" as one of the primary reasons why consumers buy and consume organic food (Zanoli and Naspetti, 2002) [5].

But health is not the only reason to motivate organic food consumption. Consumers purchase organic food mainly for the following reasons: Organic food is seen as healthier and more nutritious; no chemicals are used and tastes better than conventional food. (Fotopoulos and Kryskallis, 2002; Larue et al., 2004; Wier and Calverley, 2002) [6].

Moreover, organic products are perceived as less associated with health risks than their conventional counterparts (Williams and Hammit, 2001). Health protection

remains for a big number of consumers, the main motivation for buying organic food. Personal experience with ill health and also more general concerns about healthy eating are 9 observed. Furthermore, healthy eating is mainly affected by overall trends in consumption. (Padel and Foster, 2005) [7].

Similarly, Kyrikopolous and van Dijks (1997) found that concern over health positively influenced consumers‟ purchase intention towards organic products [8]. Although a large amount of the literature shows health consciousness as the most important motive for explaining attitude, behavior, and intention, another stream of research takes a polar argument.

Perception of quality

In food consumption, the perceived quality is a topical issue. The way consumers perceive quality is influenced by quality indicators (Olson, 1977), such as intrinsic (appearance, shape, size, etc.) and extrinsic (price, brand name, origin, and point of sale). The perceived quality of organic food by consumers has played an important role in its rapid consumption [7s] (Olson 1977; Gurviez, 2001; Padel et al., 2005; Fotopoulos, 2000; Magnusson et al.,2001;). Perceived quality is also affected by food consumption experiences and, more importantly, by the trust that consumers place on the quality indicators and their sources (Gurviez, 2001).

The concept of quality includes a number of “sensory” features related to organic products (Magnusson, 2001) [9]. These include, but are not limited to: taste, experience, and enjoyment. More and more consumers are preoccupied with the effects of industrial products and food technologies, which lead to strong concerns about risks associated with the consumption of these products.

Value

Rockeach (1968,1973,1979) was the first one to operationally define and investigate the concept of value which is “an organized set of preferential standards that are used in making selections of objections and actions, resolving conflicts, invoking social sanctions, and coping with the needs or claims for social and psychological defenses of choices made or proposed...” (Rocheack, 1979, p.20).

In other words, value refers to an enduring belief that a specific end-state of the existence of a specific mode of conduct is preferred to a different-end state or mode of conduct for living one‟s life [6] (Krystallis 2008; Rokeach, 1973). Kristallis (2008, p165) extending Rockeach’s definition stated that values could “be seen as the most abstract cognitions and they serve... as „standards‟ or models for attitudes, beliefs, and behaviors.”

A number of studies have shown value to have a major incidence in driving the decision making process of consumers towards purchasing organic food (Bellows & Onyano 2008, Krystallis et al. 2005). These studies report that there is a potential for attributes like religious observances and the significance of certain food practices of individuals to play a role in behavior and that these and other consumer values have been shown to have an incidence of consumer behavior.

Concern over food safety

In recent years’ food safety has been attaining growing importance, both in consumer minds and in marketing research (Padel et al. 2005, Baker et al. 2004, Zanoli&Naspetti 2002, Michelidou et al. 2001) [10]. One of the most accredited explanations assign the main responsibility of the emerging interest in safety issues to the various food scandals, and the consequential food scares that have emerged throughout Europe (AgraEurope 2001).

Food safety represents consumers' concern regarding residues in food resulting from chemical sprays, fertilizers, artificial additives, and preservatives, which are often linked to farming methods. In terms of consumer decision-

making, if a product is not safe, it will not be purchased and consumed. Safety is clearly a major factor in the purchasing of organic food, and testing this variable will be reflected in the readings and testing the hypothesis of this research. Padel et al. (2005) show a table contrasting data from MORI 1999, TNS 2002 AND 2004 NOPI:1. The 14 surveys measure the development of consumer motives for organic food and show that the main driving force appears to be expected health benefits. In the MORI 1999 survey, 59% claimed that was there main motive, 68% in the TNS 2002, and 78% in the 2004 NOPI:1 (Padel et al.2005). In the study carried out by Padel et al. 2005, they found that people buy organic food because they perceive them to contain no pesticide residues and safer for consumption [7].

Safety in many cases, is influenced by other key factors affecting consumer intentions. Studies reveal that safety at the attribute level is moreover a matter of trust: in the point of purchase, in the producer/processor and their methods of production, in the inspection and certification system, and in the local, regional, and or/national products. At the value level, safety appears to be a rather marginal and peripheral value for most of the product categories and could be linked to specific products, as GMO‟s or to the different production systems (Naspetti, Zanolli, 2006) [10].

Ethical concerns

Ethical issues have played an important role in the self-conception of the organic movement from the very beginning (Cierpka and Schimpf 2004, Lautermann et al.2005, Browne et al. 2000). Various publications indicate that ethical consumerism is a growing trend worldwide, and moral responsibility is a relevant buying motivation among various consumer groups (Carrigan et al.2004, Shaw and Shiu 2003) [11]. Consumers of organic products are widely perceived as being ethical, though their motivations to buy organic food are said to be mostly based on environmental criteria (Browne et al.2000). Several examples illustrate that consumers of organic food are willing to pay an additional price premium if ethical values are added to organic products and if they are well communicated (Zanoli et al.2004, Schmid et al. 2004).

Given the definition of organic food, ethical issues have a great incidence of the organic food market. Although the relationship between food attitudes and organic food choice has been studied before (Squires et al.,2001; Lockie et al.,2004; Dreezens et al.,2005) [12], less attention has been given to the relations between ethical values, attitudes, and food choice. According to Sparks and Shepherd (1992) and Saba and Messina (2003), the relation between attitude and intension has a positive and strong connection, indicating that consumers with a positive attitude towards consumption of organic food are more likely to form intensions to consume such food, thus converting positive attitudes toward intensions.

Ethical food choice motives were originally introduced by Steptoe et al.,1995, in their food choice questionnaire (FCQ). Lindeman and Vaananen (2000) criticized the scale, suggesting that ethical motives were underrepresented in the FCQ, and provided a new scale for ethical food choice motives [13]. The scale consists of three dimensions: ecological motives, political motives and religious motives. The ecological motives reflect a strong animal rights perspective in addition to general environmental concerns.

The political values reflect the importance of the political acceptability of 16 countries of origin and human rights concerns. Religious motives reflect the acceptability of food in one’s religion. The results of the study showed that environmental concerns were found to have the major influence of the purchasing behavior of consumers, indicating the important role of environmental and animal welfare concerns. As well the political motives seemed to have a positive impact on buying intentions, indicating that countries of origin should be politically acceptable for the consumers.

Religious motives were found to have a minor influence, but the variable can change its degree of importance according to the countries with stricter religious rules of what is or not acceptable to eat.

Price Premium

Throughout the literature, a large body of research is dedicated to consumer Willingness to Pay (WTP) for organic food products.

The price of organic food is playing a major role in the purchasing intentions and behavior of consumers. Normally prices tend to be a barrier to the purchases due to the price premiums of organic produce vs. conventional. In fact, the price of organic food has been cited in many articles to be the main obstacle for not buying organic food (Padel et al. 2005, Hughner et al. 2007 and Zanoli 2002). This statement may acquire real valences especially in times of economic recession, similar to the ones we are currently facing [14].

Consumer willingness to pay (WTP) phenomenon has been the focus of several studies. How much consumers might be willing to pay for these products reflects the „true" value of the product that translates into the price-premiums or the excess of prices paid over and above the „fair" price (Laroche 2001) [15]. Shaw et al. (2007) find that consumers are, for example, prepared to at least hypothetically pay a premium for organic produce; nevertheless they were not willing the pay the steep increase in price compared to conventional products. Solar et al. (2002) considers that WTP increases when consumers are presented with information incomparable prices between organic products and conventionally produced ones. This indicates that prices are indeed important, however, so is the „price perception" by consumers.

Trust in Labeling and Marketing

According to significant surveys in the area of organic food consumption (Krystallis et al., 2005; Angulo et al., 2003) [16], trust in the certification and labeling claims made on organic food packages is one the major factors influencing consumer willingness to buy organic products. Consumers are often blindly placing their faith in claims made by producers, marketers, and supermarkets. They are required to deposit a significant amount of trust when purchasing organic food because it is unlikely that at the point-of-purchase to independently verify organic claims (Bellows, 2008). Other research has revealed that distrust of organic labeling and certification claims actually is one of the most significant barriers to purchasing organic food, ranking highly along with availability, price and presentation concerns. (Padel, 2005).

In a paper exploring the gap between attitudes and behaviors, Padel et al. (2005) discovered that there was a major level of confusion and a low level of understanding about organic labeling. Organic products are credence goods (Nelson 1970, Darby and Karmi 1973) and the information about the nature of the product is asymmetric; while producers know whether the product is organic or not, in most cases the presence or absence of the organic characteristics are not detectable by consumers even after the purchase and use of the product. Consumers do not know whether a product is organic unless they are told so. So what, specifically, do customers look for in terms of brands and packaging when they are shopping for organic produce? A TNS study in 2002 asked 4,000 households how they identified products as organic. The results revealed that 52% simply looked for the word "organic" on the packaging. This means the word "organic" may be the most valuable organic brand in the UK, or more influential than any kind of certification labeling (Padel, 2008; Mintel, 2000).

III. Methodology

Research Design

The study employed developmental research in creating the product. This method is appropriate since the study will focus on product

development. Developmental research is defined as the systematic study of designing, developing, and evaluating products that must meet the criteria of internal consistency and effectiveness. Developmental research is particularly important in the field of hospitality management. The most common types of developmental research involve situations in which the product-development process is analyzed and described, and the final product is evaluated.

Data Gathering Tools

The researchers employed the following tools to gather data: Interview for gathering the necessary requirement of the study. Library research to determine the necessary steps in developing the product. Survey questionnaire to evaluate the product.

Respondents of the Study

The study included the following respondents: Poultry expert, Culinary Experts and Housewife. The poultry expert will help the researcher in determining the organic egg while the culinary experts and housewife which served as evaluators of the product.

Budgetary Requirement

ITEM	AMOUNT (P)				
A. Personal Services	Q1	Q2	Q3	Q4	Total
Salary of Research aide/ assistant/part time laborer	500	500	500	500	P2,000
Others					
Sub-Total					
B.MOOE					
Travel	500	500	500	500	2,000
Communication	1000	1000	1000	1000	4,000
Supplies & Materials	7,000	7,000	7,000	7,000	28,000
Contingency (10% MOOE)					3,400
Sub-Total					P37,400
Grand Total					**P39,400**

Product Sensory Evaluation

The product sensory evaluation used a five-point Likert scale ranging from 1-Not acceptable to 5 – Highly Acceptable. After the 10 culinary experts and 30 housewives evaluated the product in terms of appearance, taste, texture, odor, and mouthfeel, the following results are presented and analyzed:

Descriptor	Mean	Descriptive Rating
Appearance	4.56	Highly Acceptable
Taste	4.76	Highly Acceptable
Texture	4.52	Highly Acceptable
Odor	4.78	Highly Acceptable
Mouthfeel	4.51	Highly Acceptable
Overall	4.63	Highly Acceptable

The data shows that the overall product sensory evaluation has a weighted mean of 4.63, which means that the product is highly acceptable in the taste of the culinary experts and housewives. Specifically, the products' appearance (4.56), taste (4.76), texture (4.52), odor (4.78) and mouthfeel (4.51) are highly acceptable as well.

These findings imply that the product is highly acceptable in the taste of the culinary experts and housewives in terms of appearance, texture, taste, odor, and mouthfeel.

References

[1] Noli A. Ermitanio (2015), An egg a day keeps the doctor away, say experts

[2] Mayo Clinic Staff (n.d)Discover the difference between organic foods and their traditionally grown counterparts when it comes to nutrition, safety, and price.

[3] Mega Global (n.d), Sardines Philippines: A Culinary Overview

[4] Kraft, F.B. and Goddell, P.W. (1993) "Identifying the health-conscious consumer." Journal of Health Care Marketing, 13, Pp.18-25

[5] Zanoli, Raffaele, and Simona Naspetti. (2002). "Consumer motivations in the purchase of organic food." British Food Journal; 2002; 104, 8/9; pp. 643

[6] Fotopoulos, C and Krystallis, A (2002). "Purchasing motives and profile of Greek organic consumers: a countrywide survey". British Food Journal, 104(9), 730-764

[7] Padel , Susanne and Carolyn Foster. (2005) "Exploring the gap between attitudes and behaviour" British Food Journal; 2005; 107, 8; pp. 606

[8] Kyriakopoulos, K. and van Dijk, G. (1997) "Post-purchase intentions for organic foodstuff: A conceptual framework based on the perception of product value." Journal of International Food and Agribusiness Marketing 9(3):Pp,1-19

[9] Magnusson, Maria & Anne Arovla, Ulla-Kaisa Kovisto Hrsti, Lars Aberg, Per-Olow Sjoden. (2001) "Attitudes towards organic foods among Swedish customers." British Food Journal. 103(3); pp.209-227

[10] Zanoli, Raffaele and Simona Naspetti. (2002). "Consumer motivations in the purchase of organic food." British Food Journal; 2002; 104, 8/9; pp. 643

[11] Shaw, D.S. & Shiu, E (2002) "An assessment of ethical obligation and self-identity in ethical consumer decision making: a structural equation modelling approach" International Journal of Consumer Studies. Vol.26. Pp.286-293.

[12] Lockie, S., K. Mummery. (2002) "Eating Green: Motivations behind organic food consumption in Australia" Sociologia Ruralis 42(2002) Pp.23-40.

[13] Saher, Marieke & Marjaana Lindeman, Ulla-Kaisa Koivisto Hursti. (2006) "Attitudes toward genetically modified and organic foods" Research Report. Appetite. 46. Pp. 324-331

[14] Shaw-Hughner, Rene and Pierre McDonagh, Andrea Prothero, Clifford J. Shultz II1, and Julie Stanton. (2007). "Who are organic food customers?" Journal of Consumer Behaviour. 6. Pp.94-110

[15] Laroche, M., Bergeron J. & Barbaro-Forleo, G (2001) "Targeting consumers who are willing to pay more for environmentally friendly products" Journal of Consumer Marketing, Vol 18, No. 6, pp. 503-20

[16] Krystallis, Athanasios; George Chryssohoidis. (2005) "Consumers' willingness to pay for organic food: Factors that affect it and value" British Food Journal; 2005; 107, 4/5; Pp. 320