International Journal for Innovation Education and Research

ONLINE ISSN: 2411-2933 PRINT - ISSN: 2411-3123

Food Science from the Perspective of the Nutrition Professional

Luis Henrique Almeida Castro;Diego Bezerra de Souza;Geanlucas Mendes Monteiro;Gildiney Penaves de Alencar;João Vitor Alves dos Santos.;Lúcio Barbosa Neto;Raphael de Souza Cosmo;Thiago Teixeira Pereira;Wesley Sebastião da Silva Moraes;Cristiane Martins Viegas de Oliveira

Abstract

This work had as thematic the study in analysis of foods from the perspective of the nutrition professional. The objective of the research was to seek the training of this professional for the then analysis of the performance in quality control and formulation of products, with the perspective of assistance to projects carried out on site. This research was conducted in a community cafeteria located in a university in the interior of the State of Mato Grosso do Sul - Brazil. As a data collection tool, preparation technical sheets were used in which costs were collected, the preparation order, and the nutritional value provided. Sensory observation was used as an analysis of the data in order to measure and analyze and interpret the reactions of food and material characteristics. It appears that with the identification, attributions and activities developed by a nutritionist in the area, it became possible to analyze the processing of raw material and industrialized food products, according to the needs presented by the site. As for the points not reached were not due to any other factors than those related to the specificities of the research site, which did not prevent the acquisition of theoretical, practical, scientific, social and environmental knowledge of the points concerning the area of action of the nutritionist professional within the field of food science.

Keyword: Food Science; Nutrition; Collective Food

Published Date: 2/1/2020 **Page.160-166** **Vol 8 No 02 2020**

DOI: https://doi.org/10.31686/ijier.Vol8.Iss2.2181

Food Science from the Perspective of the Nutrition Professional

Luis Henrique Almeida Castro (nutricao.luishenrique@gmail.com)
PhD in the Health Sciences Graduate Program, Federal University of Grande Dourados
Dourados, Mato Grosso do Sul – Brazil.

Diego Bezerra de Souza
Local Development Graduate Program, Dom Bosco Catholic University
Campo Grande, Mato Grosso do Sul – Brazil.

Geanlucas Mendes Monteiro
Heath and Development in West Central Region Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

Gildiney Penaves de Alencar
Heath and Development in West Central Region Graduate Program, Federal University of Mato Grosso do Sul
Campo Grande, Mato Grosso do Sul – Brazil.

João Vitor Alves dos Santos.
Graduated in Law and Master's Degree in Local Development at Don Bosco Catholic University. Campo Grande, Mato Grosso do Sul – Brazil.

Lúcio Barbosa Neto
Master's Degree Program in Movement Sciences in the Federal University of Mato Grosso do Sul (UFMS) Campo Grande, Mato Grosso do Sul – Brazil.

Raphael de Souza Cosmo
Municipal Department of Education
Campo Grande, Mato Grosso do Sul – Brazil.

Thiago Teixeira Pereira
Health Sciences Graduate Program, Federal University of Grande Dourados
Dourados, Mato Grosso do Sul – Brazil.

Wesley Sebastião da Silva Moraes
Graduated in Physical Education and post-graduated in exercise physiology and sports training and in special inclusive education with emphasis on multiple disabilities.

Dourados-MS-Brazil.

Cristiane Martins Viegas de Oliveira
Local Development Graduate Program, Dom Bosco Catholic University

Abstract

This work had as thematic the study in analysis of foods from the perspective of the nutrition professional. The objective of the research was to seek the training of this professional for the then analysis of the performance in quality control and formulation of products, with the perspective of assistance to projects carried out on site. This research was conducted in a community cafeteria located in a university in the interior of the State of Mato Grosso do Sul - Brazil. As a data collection tool, preparation technical sheets were used in which costs were collected, the preparation order, and the nutritional value provided. Sensory observation was used as an analysis of the data in order to measure and analyze and interpret the reactions of food and material characteristics. It appears that with the identification, attributions and activities developed by a nutritionist in the area, it became possible to analyze the processing of raw material and industrialized food products, according to the needs presented by the site. As for the points not reached were not due to any other factors than those related to the specificities of the research site, which did not prevent the acquisition of theoretical, practical, scientific, social and environmental knowledge of the points concerning the area of action of the nutritionist professional within the field of food science.

Keywords: Food Science; Nutrition; Collective Food

1. Introduction

According to CFN RESOLUTION No. 380/2005 one of the areas in which the nutritionist professional can act is the Food Industry, which involves development and production activities of products related to food and nutrition.

In this area the nutritionist professional will prepare technical-scientific reports, carry out the management of food product development projects, carry out training or specialized assistance in food and nutrition, carry out quality control of foodstuffs and food products, as well as may act in marketing and in the development of studies and experimental work in food and nutrition, carry out analysis regarding the processing of industrialized food products (RESOLUTION CFN No. 380/2005).

One of the functions of the nutritionist in this area is to participate in the multiprofessional team in order to evaluate the performance and quality of the product, participate in the elaboration of a Manual of Good Manufacturing Practices; elaborate nutritional information and labeling; research of new raw materials and their applications; participate in the elaboration of technical sheets and cost spreadsheets and studies to make comparisons with products that are being developed with similar products marketed (CFN RESOLUTION No. 380/2005).

2. Methodology

2.1 Research location

The research was carried out in a popular and community restaurant located in a public university in the interior of the State of Mato Grosso do Sul - Brazil.

The University in question - which will be kept anonymous here - hosts its physical facilities, equipment, utensils, electricity, gas, water and operational technical support for the incubation project of a rural family agro-industry while it participated with labor and food supply. The products developed were marketed to the university community and the income generated was reverted to the entrepreneurs.

2.2 Completed Projects

2.2.1 Incubators

The incubator project promotes food security through different actions, divided into two groups: the first is through support to the Emergency Programmes to Fight Hunger and the second group through Actions to Support Structuring Policies for Food and Nutritional Security.

In the first group are the actions to support the management of cash transfer programmes (Bolsa Família Programme), training beneficiaries through the participation of professionals, using simple language and easy to understand, even seeking other ways to work on the subject, such as through theatres, as has already occurred, which aimed to show the consequences of non-compliance with conditionalities, demonstrating the impact this causes.

Another action of this group is related to the Food Distribution Programs (Food Banks and Food Baskets), as is the case of the MESA BRASIL project that donates food benefiting some institutions. This project aims to verify the nutritional value of these donated foods and the impact on the diet caused by this balance. Regarding Food Baskets, there is the action in partnership with FUNAI, which develops activities since the updating of the registers of the indigenous beneficiaries as the development of activities related to the verification of the nutritional balance of the food present in the basket.

In the second group, actions in support of Structuring Policies for Food and Nutritional Security can be highlighted, subdivided into Direct Purchase from Family Agriculture Program, through Law No. 11,947/2009, which guarantees the purchase of products from Family agriculture, this action aims to train those responsible for the purchase of food (public agents) as well as training farmers to know their rights, thus making it easier to approach these groups.

Another action of this second group, is the support to the Project Educating with the School Garden and Gastronomy (PHEG), in which it offers courses of composting using the leftovers of food of university restaurants, the cultivation of organic vegetables and the use of these for the elaboration of culinary preparations, seeking to elaborate recipes that use all the parts of the food, thus seeking to use it in an integral way, for example, the manufacture of bread with the leaves of the carrot or beet. The Qualification of Rural Family Agroindustries and Access to the Food Acquisition Program (PAA) is another action developed by the incubator project, in which the objective is the standardization of the preparations, advising on the importance of sanitary quality control and using knowledge of dietetic technique to analyze the cost of preparations and consequently the price to be stipulated for each product.

2.2.2 Healthy Cafeteria Project

The Healthy Cafeteria project started from a need of the members of the solidarity economy since at certain times of the year it becomes unfavorable to produce some organic food sold by them at the city's organic products fair. From this reality, the members felt the need to complement the income, and the idea of marketing organic products already produced by them at the fair emerged.

The project's goal was to produce snacks to be sold at the organic products fair inside the university campus, thus being the target audience, all people linked to the university universe as teachers, students, servants and other populations in the vicinity of the university city.

The production of these products was carried out by the members of solidarity economy groups themselves, using the physical facilities as well as the utensils and equipment of the incubator (see topic 2.1).

This project started in September 2018, offering another alternative for food, becoming a project of great value due to the distance that exists between the city center and the university campus, and there are a large number of courses offered in an integral way, so it is necessary that the students (being this the larger public) have their meals outside the home.

Therefore, this project has benefited both the public served and the members of these vulnerable groups who produce and market the products, thus being a way to encourage and promote development, organizational learning and income generation. The project has also provided the participation of undergraduates and postgraduates from different university courses, being a project that is related to both teaching and research.

Inside the canteen several types of products were marketed, aiming to offer safe, quality and healthier products, controlling the use of salt and oil. The revenues were proposed both by the members of the solidarity economy groups and by the coordinator responsible for the project. The recipes were only readjusted to make them healthier, for example: the recipe for homemade bread was perfected using herbs and/or elements that would be discarded such as the carrot/beetroot stalk, etc. in its preparation, thus increasing the fibre content of the preparation. Use of vegetables in fruit juices, e.g. orange with carrot, pineapple with mint, etc. Changes in habits, such as not using oil to grease the shape in some types of preparations.

They were sold in the canteen: fried salted by immersion, but it was only allowed through a research where the amount absorbed at the time of frying was observed being minimal, because of the use of manioc flour to bread the thighs instead of breadcrumbs.

Inside the canteen were sold baked and fried snacks, cakes, natural sandwiches, natural juices, among other products. In addition to traditional products, some of the meat-free preparations were also sold to the vegetarian public, without lactose, to the public with lactose intolerance, which is an increasingly common disease, characterized as an inability to digest milk sugar, caused by deficiency or absence of an intestinal enzyme (lactase) and the symptoms of these diseases are abdominal discomfort, nausea, diarrhea and gas caused by eating foods containing lactose, these symptoms can be avoided by modifying the diet. There were also products without any kind of animal origin elements to serve the vegan public.

2.3 Data Collection

For the collection of the data, technical preparation sheets were used in which the survey of costs, the

preparation order, as well as the nutritional value were carried out.

2.4 Analysis of data

The analysis of the data was carried out by means of sensory observation, in order to measure and analyze, interpret the reactions of the characteristics of food and materials, through the five senses (sight, smell, taste, touch and hearing).

3. Activities developed

Recipe standardization tools such as the technical preparation sheet used to carry out the cost survey, how the preparation order should be, and also provides the nutritional value, were used, thus being a very important tool in menu planning (HAUTRIVE; PICCOLI, 2013).

The technical preparation sheet contains essential information such as the ingredients used in the preparation, the quantity of each, the method of preparation, yield, etc. (HAUTRIVE; PICCOLI, 2013).

This standardization of recipes, makes the work of the nutritionist professional easier, because it makes it easier both when training the employees and when planning the day-to-day work. Ensures that preparations are carried out in the same way by all staff and at the appropriate time (HAUTRIVE; PICCOLI, 2013).

During the case study, technical preparation sheets were made for different preparations marketed at the University's Healthy Cafeteria. It was possible to follow the preparation of each recipe during its execution, observing each ingredient to be used, weighing each of these ingredients, before and after removing the inedible parts in order to know the gross weight and at the end the net weight, in which is the quantity actually used in the preparation, it was also possible to observe the time it took to prepare the recipe, the order and the way of preparation, as well as observing the yield of the finished preparation.

Sensory analysis is an activity used to measure and thus analyze, interpret the reactions of the characteristics of food and materials through the five senses (sight, smell, taste, touch and hearing) (UNIFESP, 2010).

As the acceptability test is one of the instruments of sensory analysis, this test, as its name already says, aims to measure the acceptability index of preparations / foods. Thus one of the tools for measuring acceptability is the use of the hedonic scale, which can be divided into facial, mixed, verbal and playful. The hedonic facial scale is a method used to evaluate the acceptability of food in a simple and playful way. In which it uses chips, which will indicate the index of acceptability (UNIFESP, 2010).

In this context it was proposed to perform this test to verify the acceptability of some of the preparations marketed in the university's healthy snack bar. According to information gathered in the field, the preparation "coxinha de carne" was chosen because it is one of the preparations in greatest demand among the products sold in the Snack Bar.

A day of the week was randomly established for data collection during the establishment's peak hours (from 1:45 p.m. to 4:00 p.m.) and, on that occasion, for greater reliability of results, all clients who requested this preparation were approached.

All customers were informed that their cooperation was not compulsory and that it was voluntary. To the diners who accepted the conditions, the hedonic scale evaluation form introduced by a direct question was distributed in order to facilitate understanding and completion.

The ludic scale designed in *smiles* was chosen over the descriptive scale since the Cafeteria serves a varied public which, although mostly composed of academics, is also made up of the teaching staff, employees, outsourced teams and visitors, thus being a more viable methodology and easier to understand.
The scale varied from "very bad", "bad", "indifferent", "good" and "very good" respectively in order from left to right. In all, 21 meat legs were marketed upon request to 21 customers and only one refused to participate in the survey on the grounds of lack of time to complete the evaluation form.
From the valid fills computed, as numerically demonstrated in the graph above, an approval rate of 100% composed of 85% for the maximum positive option and 15% for the second maximum positive option was obtained. The standard deviation obtained from *n*, by model calculation, in relation to the average weekly requests at the time considered (28.5 requests, namely) was 7.38 being considered, therefore, a representative sample of the order of 70.15% of the average total *n.* The calculations were performed in spreadsheet in Excel® 2018 *software.*

4. Conclusion

The objectives established and the activities proposed in the research around the area of Food Sciences could be accomplished in a satisfactory way in almost its totality in which the professional was trained for the analysis of food and for performance in quality control and product formulation.
We tried to identify the attributions and activities developed by a nutritionist in the area. Analyses were also carried out regarding the processing of raw materials and industrialized food products, according to the needs of the site, developing projects for the elaboration of technical-scientific reports. The participation and development of products were essential, in addition to the quality control of foodstuffs and foodstuffs in terms of physical, chemical, microbiological and sensory aspects.
However, it is observed that the points not reached were not due to any factors other than those related to the specificities of the research site which, in a complementary analysis, did not prevent the acquisition of theoretical, practical, scientific, social and environmental knowledge of the points concerning the area of action of the nutritionist professional within the field of food science.

5. References

GIRL, J.A.S. Incubator Models. InfoDev Incubator Support Center. Pontoifícia Catholic University of Rio de Janeiro. Rio de Janeiro, 2003.

BEZERRA, A. F. A. de. et al. The Incubators and Local Development: what it is and why support it. 30th World Conference of Science Parks. Anprotec, SP: 2013.

BRAZIL. Federal Council of Nutritionists. CFN Resolution No. 378 of December 9, 2005. Provides on the registration and registration of legal entities in the regional councils of nutritionists and other provisions. Access in June 2017. Available at < http://www.cfn.org.br/novosite/pdf/res/2005/res378.pdf>.

BRAZIL. Ministry of Health. National Surveillance Agency. Resolution RDC No 216 of 15 September

2004. Technical Regulation of Good Practices for food services. Official Journal of the Union; Executive Branch.

BRAZIL. Mystery of Health. National Surveillance Agency. Portaria CVS-6, de 10/03/99. Technical regulation on parameters and criteria for hygienic and sanitary control in food establishments. State Gazette

Collaborating Center for School Feeding and Nutrition - UNIFESP. Manual for the application of the acceptability tests in the National School Feeding Program - PNAE. Access in June 2017. Available at < http://www.fnde.gov.br/programas/alimentacao-escolar/alimentacao-escolar-material-de-divulgacao/alimentacao-manuais/item/5166-manual-paraaplica%C3%A7%C3%A3o-dos-testes-de-aceitabilidade-no-pnae.>.

CORDEIRO, R. M. What is a Social Incubator? Youth Political Action. _____ , 2003.

HAUTRIVE,T,P; PICCOLI, L. Preparation of Technical Data Sheets for a Food and Nutrition Unit of the Municipality of Xaxim - Santa Catarina, Brazil. e-Scientia Magazine, Vol. 6, No. 1, p. 01-07. Belo Horizonte, 2013.

MINISTRY OF HEALTH. Mandatory Nutrition Labelling: Guidance Manual for Food Industries - 2nd Version / National Health Surveillance Agency - University of Brasilia - Brasilia: Ministry of Health, National Health Surveillance Agency / University of Brasilia, 2005.

CORE SUPPORT TO EXTENSION ACTIVITIES IN SOLIDARITY ECONOMY. NESOL-USP. Solidarity Economy in Várzea Paulista: building a public policy. São Paulo. São Paulo: NESOL-USP, 2013.

SANT'ANA, H. M. P. Functional physical planning of feeding and nutrition units. Rio de Janeiro: Rubio, 2012

TEIXEIRA, S. et al. Administration applied to Food and Nutrition units. São Paulo: Atheneu, 2007.