

Offer of Gluten-Free Preparations and Operational Processes of the Restaurants of a Gastronomic Walk Located in San José-Costa Rica

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Abstract

Celiac disease is a disorder of the immune system, caused by the intake of prolamins and glutenins found in gluten. This substance is present in food products that contain in its ingredient's wheat, barley, rye or mixtures of these cereals. The gluten-free diet requires eliminating all food with this substance and avoiding cross-contamination with other foods that contain it. As of 2015 in Costa Rica, Law 8975 governs which establish the care of people with celiac disease, but this rule does not include the offer of gluten-free fresh food in restaurants, and neither does it stipulate or supervise compliance with operational requirements that allow preventing cross-contamination with gluten in restaurants. The purpose of this study was to know the offer of „gluten-free” preparations and the operational processes used by the Restaurants located in a specialized food court, through the application of two instruments that included the type of preparations and processing of all material. Additionally, to find out if the establishments have adequate operational processes throughout the process, from receipt of raw material to consumer service, to ensure that the preparations offered as LG comply with the provisions of the standard.

Keywords: *Gluten-Free; Cross-Contamination; Operational Processes; Prevention; Costa Rica*

Abbreviation

GF: Gluten Free

Introduction

Celiac disease is a disorder of the immune system, multifactorial, multisystemic and chronic, caused by the intake of prolamins and glutenins found in gluten, which produce a mucosa inflammation and atrophy of the small intestine villi, which causes a poor absorption of nutrients [1]. Gluten is present in food products that contain in its ingredients: wheat, barley, rye and in mixtures of these cereals, such as triticale (hybrid wheat and rye cereal), as well as some food additives [2].

Internationally, it is estimated that 1 in 100 people are celiac, however, the majority of people who suffer from this disease have not yet been diagnosed [3]. In Costa Rica there is no record on the prevalence of this sickness. Currently, the only proven treatment that exists is to follow a permanent gluten-free regimen. This gluten-free diet requires eliminating all food with this substance, as well as avoiding cross contamination with other foods that contain it. Cross contamination can occur at any time, from cultivation, grinding, storage, industrial packaging, preparation and consumption [3].

The prevalence of this disease prompted several restaurants in the country to offer “gluten-free” (GF) options. Currently, there are restaurants that offer preparations exclusively “gluten-free” foods (all menu options are GF) and others that have both options (with and without gluten), the latter are named in scientific studies as “preparation shared”. Due to the special care that the celiac population requires when selecting their food, as of 2015 in Costa Rica, Law 8975 governs. However, there are no regulations regarding the supply of gluten-free fresh food in restaurants, nor is it stipulated or supervised compliance with operational requirements to prevent cross-contamination with gluten, which ensure that these foods are safe for the celiac population. The present study responds to the need to know the offer of “gluten-free” preparations and the operative processes that are implemented for their elaboration, in the Restaurants of a specialized food court in Costa Rica.

Materials and Methods

Object of study

The restaurants analyzed are part of in the Restaurants of a specialized gastronomic walk in San José, Costa Rica

Study of the offer

An instrument was applied to collect the name and location of the restaurants offering gluten-free dishes, in addition, it described and categorized the type of gluten-free dishes (rices, meats, salads, pizza, among others), obtained from the menu review and consultation with the establishment staff.

Study of the operational processes

The survey was prepared based on a documentary review through the experience of the researchers considering the operational processes for the prevention and control of gluten cross contamination, from the receipt process to the table service or home delivery.

The following are the studied sections:

- Standardized operational processes, standards, verification and guarantee of the absence of gluten in “GF” foods
- Personnel, training and food handling “GF”
- Purchase, transport and receipt of raw materials “GF”
- Storage of raw materials “GF”
- Exclusive use of equipment for “GF” preparations by area
- Exclusive use of utensils for “GF” preparations by area
- Distribution of the “GF” dish to the diner
- Cleaning and disinfection of surfaces, equipment and dishes
- Express food service “GF”.

The items were “Yes”, “No” and “Not applicable” (only in the non-mandatory criteria). For the section on the use of equipment and raw material in gluten-free preparations, “exclusive”, “shared” and “not applicable” were used. In addition, an open question was included about how they can ensure that the preparations are “GF”.

Results and Discussion

According to Packaged Facts, gluten-free products remains strong in both the foodservice and retail sectors [4]. Given this premise, the 64 food establishments located in the gastronomic walk were visited, using the information available on the official page of the walk.

Of the results obtained, 59 restaurants were identified in the study area, 59% of these (35 restaurants) are classified as “shared production” services (dishes with and without gluten), no study was found in the study area restaurant with an exclusive offer “GF”, this trend has also been observed in other studies as mentioned by Šálková and Hošková [5]. However, of the 35 restaurants, only 6 (10%) declare gluten-free dishes on the menu. In addition, it was found that the staff of the rest of the restaurants recommended preparations that by their nature do not contain gluten and that, in addition, had kitchen staff, willing to prepare the dishes under the requirements of celiac people.

This situation is potentially dangerous for the celiac population, especially for the most sensitive, because the presence of traces of gluten may be sufficient to cause clinical and mucosal changes, which compromises the health of the consumer [5-7].

Among the dishes offered as “gluten-free” were: entries (patacones, cassava, ceviche, soup, guacamole, hummus, sauteed mushrooms and creams), rice-based preparations (sushi, risotto, among others), salads, arepas and quesadillas; also vegetarian preparations, meats (chicken, fish, tenderloin, salmon and pork), all of them typical Costa Rican dishes as well as rice and beans cooked with coconut oil, “chifrijo”, “casados” and pasta.

Figure 1 shows the absolute distribution of gluten-free dishes offered by both the staff and the menu, with meats, salads and entrees being the most on offer.

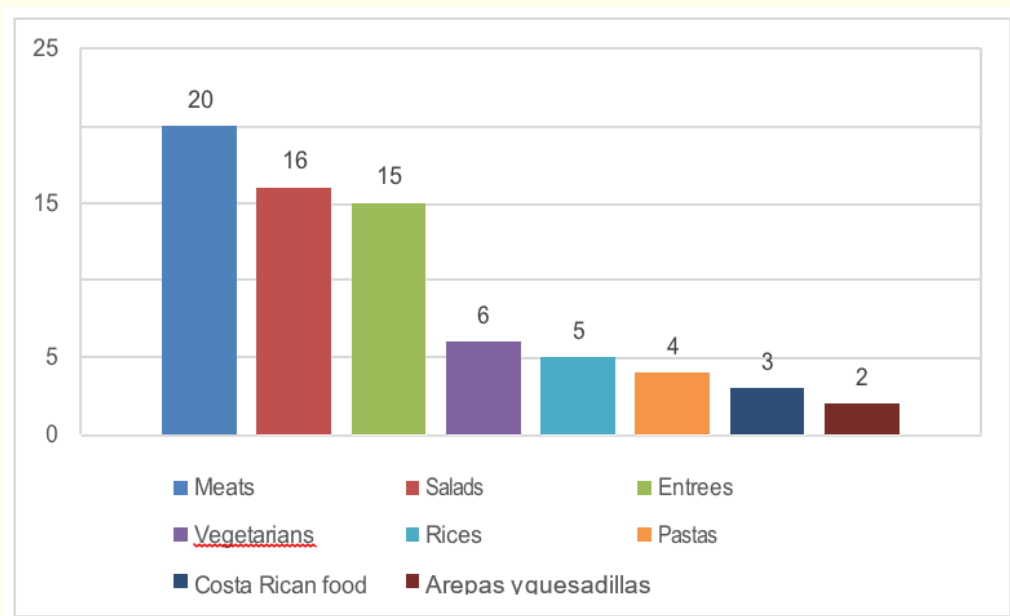


Figure 1: Absolute distribution of the type of offer of gluten-free dishes in the restaurants of the gastronomic walk; San José, Costa Rica 2018.

When visiting the study area, 35 restaurants were identified as offering “GF” dishes according to menu and staff instructions. However, during the application of the survey about the operational processes, three of the food establishments indicated that they did not offer “GF” options, although in the first visit they recommended some kind of gluten-free preparation, and in four restaurants, no it was possible to complete the survey due to time constraints. Finally, a response was obtained from 27 restaurants, equivalent to 87% of the restaurants under study.

When analyzing the data obtained, it was identified that 59% of the restaurants surveyed do not have guides on the preparation of gluten-free dishes. Nor do they have established rules for the entry of visitors (suppliers, external persons, among others). On this sense [8] consider that the breach of the rules for the prevention of cross-contamination, represents a risk during any stage of the process operating of a food service such as harvest, delivery, storage, preparation and distribution of food.

The 84% do not apply laboratory controls for the verification of gluten in the service areas; only 16% of these use laboratory tests to ensure the absence of this allergen in the different areas of the restaurant. For Farage and Zandonadi [9] the use of a checklist (previously validated) could represent an alternative for monitoring gluten content in the food service. The instrument cannot replace the laboratory analysis, but it may represent a complement to reduce the risk of cross contamination.

In the study cited by Farage F and Zandonadi R [9] it was found that 78.6% of the celiac patients interviewed feel restricted when they eat prepared foods away from home, due to the potential risk to which they are exposed by cross contamination It exists in restaurants when sharing areas, surfaces, ingredients and utensils used for the preparation of foods that contain gluten, although the tendency in many restaurants is to offer a greater amount of gluten-free preparations.

For the preparation of these dishes, people of 20% of the restaurants said that they did not know if the raw materials are exclusively “GF” and 4% indicated that some of the inputs they use are not LG. Another aspect related to the receipt of materials is that 56% do not know if their supplier transports this raw material (GF) separately from the rest. Through the study conducted by Thompson., *et al.* (2010), the importance of monitoring raw materials was demonstrated by finding that 7 of 22 analyzed samples of gluten- free grains and flours sold in the United States, presented unacceptable levels of gluten content.

Related to the operative processes of storage, it was found that 52% of the restaurants stores the “GF” raw materials labeled and in separate areas. 78% use plastic containers for storage. However, approximately 82% share shelves, refrigerators and freezers with raw material that is not “GF”.

The basic equipment of the kitchen area such as ovens, worktables, pots, iron, microwave and fryer, is used for preparations with and without gluten.

However, 67% mention an exclusive use of utensils (cutting boards, knives) and raw materials such as grains, flours, oil, dressings and sauces for their preparation; Other raw materials such as salt, sugar, spices, butter and jelly are shared use.

Crockery, cutlery and cloth napkins and products such as: salt, sugar and spices used in the lounge area; it is found that 79% of restaurants are also shared. However, approximately 51% have sauces, oil and exclusive dressings for “GF” dishes for diners in the lounge.

The 83% of the restaurants state that the equipment cleaning and disinfection utensils, kitchen utensils and surfaces are for shared use, in preparations with or without gluten. Factor mentioned by Farage F and Zandonadi R [9] in their study as a potentially risky practice due to the risk of cross contamination.

The 92% of restaurants disassemble the equipment (such as blender and blender) for deep cleaning. Being the dishwashing soap and water the most used substances for cleaning. However, as mentioned in the guidelines for the safe preparation of gluten- free foods, the

use of ethanol in concentrations between 60 - 70% is recommended, because prolamines (protein present in gluten) is soluble at these concentrations of alcohol [10].

The 77% of the restaurants do not have exclusive personnel to prepare "LG" dishes. In addition, they point out that before handling gluten-free foods, procedures such as hand washing, surface and equipment cleaning and glove placement are performed.

The fact that many of the restaurants (65%) did not have a staff training program in GF dishes preparation, is important because different studies indicate that the training of chefs and staff, allows to reduce the negative effects produced by the consumption of products with gluten content in celiac people [5-8].

Of the restaurants surveyed, 11 have express service for gluten-free preparations and of these, only 7 say they guarantee that during this process the food is not contaminated with gluten. However, the measures used to prevent contamination during this process were not consulted.

The 44% of restaurants studied said that taking care of the handling of the preparations is what allows them to ensure that there is no contamination with gluten in the dishes. However, the review of the different scientific articles indicates that care in food handling is not enough in the restaurants of shared production; to ensure the preparation of gluten-free dishes, and recommend the importance of staff training, compliance with standards, standardization of operational processes from receipt of raw materials to delivery to the consumer, monitoring of areas and Food through laboratory controls.

Conclusion

The gastronomic walk studied represent a dynamic commercial area, where restaurants with a wide variety of dishes are concentrated, among these some offered as "gluten-free". However, the dishes are prepared in restaurants of shared production, where preparations are suggested by the staff at the request of the client and very few declare it on their menu.

For the offer of gluten-free options, restaurants claim to take care of food handling. However, with the analysis of the information obtained from the survey, it was found that the establishments do not have adequate operational processes throughout the process, from receipt of raw material to consumer service, to ensure that the preparations offered as LG comply with what is established by the norm, which means an important risk for customers health

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