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FOOD SAFETY AND FOOD SECURITY

Assessment of microbiological contamination in different catering units related to food handling in the district of Bragança

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INTRODUCTION:

The catering industry has developed over time, increasing the concern about the health and nutritional quality of the food. Therefore producers and food establishments are under pressure to improve the quality of their products and services in order to assure that food is safe and suitable for consumption.

The microbial contamination of food is a major public health problem since it affects millions of people worldwide. Poor hygiene practices within the food processing environment can cause the contamination of food with pathogenic particles, which is a risk for the consumers health and safety. In establishments where food is manufactured and served, several measures regarding the control of the microbiologic contamination are needed. The majors microorganisms associated to food contamination are the bacterias due to the fact that they have a high pathogenicity and diversity.

For an assessment of the hygienic conditions related to food handling is essential to know the sanitary conditions of the establishments since they can reduce the risks of food contamination. These food contaminations can cause adverse human health problems.

OBJECTIVES:

Assessment of microbial contamination of the materials and hands of food handlers in different restoration units in the district of Bragança.

MATERIALS AND METHODS:

In this project we analyzed 694 samples, 356hands and 338 utensils (crockery). It was conducted a microbiological assessment of the following microorganisms: *Staphylococcus aureus,* total and fecal coliforms and *Escherichia coli* in the hands of food handlers and analysis of total germs, total and fecal coliforms and *Escherichia coli* in handling utensils in different restoration units (day care centers, restaurants/snack bars, supermarkets/grocers; health center's/hospitals, schools/kindergartens; butchers, fishmongers; delicatessens; dairies; hotels; governmental establishments). All the samples belong to the areas of Alfândega da Fé, Bragança, Carrazeda de Ansiães, Freixo de Espada à Cinta, Macedo de Cavaleiros, Mirandela, Mogadouro, Torre de Moncorvo, Vila Nova de Foz Côa,Vila Flôr, Vimioso and Vinhais,and were analyzed in the Public Health Laboratory of Bragança, in the period between January and December 2013.
Excel - For the statistical analysis plan the program of Microsoft Office was used.

RESULTS AND DISCUSSION:

Regarding the hands of manipulators, 53.67% of the cases showed contamination. The hands samples data analysis showed 28.74% of total coliform, 14.96% of fecal coliforms, 3.23% of *Staphylococcus aureus* and

6.74% of *Escherichia coli*. The contamination of crockery, cutlery and other kitchen utensils, was confirmed in 28.80% of the samples with “unsatisfactory” results and 10.87% with "bad” results. These contaminations stand out 91.67% of the samples with the presence of total germs, 53.47% with total coliforms, 27.78% with fecal coliforms and 15:28% with *Escherichia coli*. It was also found that 60.33% of the samples had “satisfactory" results. The classification of the cleanliness of glassware and/or cutlery is classified as satisfactory if the number of colonies is less than or equal to 100 CFU (Colony Forming Units) per piece and the detection of coliforms is negative, it is classified as “unsatisfactory” if the number of colonies is greater than 100 CFU per piece and/or if the presence of coliforms is positive, it may still be classified as “bad” when the search of fecal coliforms and/or the research of *E. coli* is positive.

CONCLUSION:

We concluded that food handler contamination is the main cause of poor hygiene in the food manipulation process. The level of hygiene registered in most samples of the crockery, cutlery and other kitchen utensils used in food manipulation process is satisfactory. And when compared with the samples from the food handlers these samples have better results, even though we still recorded some levels of contamination. In general, it is necessary to implement appropriate food hygiene measures in order to reduce these contaminants in the catering units.

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