

Poster

Microbiological control in beverage industry



Cinta Borrero Rivero (1) Tomás Gonzalez Dominguez (2*) y Jose Ignacio Ibeas (3)

(1) Área de Control Microbiológico de Schweppes Suntory, Alcalá de Guadaria, Sevilla

(2*) Departamento de Control de Calidad y Medioambiente de Schweppes Suntory, Alcalá de Guadaria, Sevilla

(3) Area de Genética. Dpto Biol. Mol. e Ing. Bioquímica. Universidad Pablo de Olavide. Sevilla

*Jefe del departamento de Calidad de Schweppes Suntory, Corresponding author

Keywords: quality control; juice-based beverages; ISO, food safety

ABSTRACT

Motivation: The purpose of this study is to establish a microbiological and physico-chemical control of juice-based beverages. All these analyses are included in the International Standard Organization (ISO) regulations. The goal of food companies is to offer a high quality product for human health, so a series of microbiological tests are required to ensure the safety of the product at different levels.

Methods: The method used for the microbiological test was the plate count for bacteria, molds and yeasts colonies. Samples were collected at different locations in the factory: water tanks, ingredient tanks, facilities and final product, as established in Article 3 of Real Decreto 650/2011. Samples of clear products, such as water, were analyzed by filtration with 0.45 µm membranes. They were then transferred to culture plates with selective media for selective counting. Samples of pulp products were analyzed by spreading it in acidified media, recreating the conditions of the final product, so facilitating the growth of microorganisms present in fruit juices. In addition, chemical parameters, such as acidity and Brix degree were measured as indicated in Article 1 of Real Decreto 1518/2007, by acid-base titration and spectrophotometry respectively.

Results: Results obtained were categorized as presence or absence of microorganisms in culture media. Among the ingredient samples, a high growth for molds and yeasts was observed in compare to bacteria; however it was still within the established limits. In water samples, coliform bacteria were not present in any case. After UV treatment absence of microbial growth in water was observed. In the finished product no microorganisms were observed after pasteurization. The physicochemical parameters were within the standards of the regulation.

Conclusions: According to the established parameters all the counts were within the limits and therefore the safety of the product and the high level of food quality can be ensured. In addition, the effectiveness of the treatment of water purification and cleaning of the facilities was confirmed, and aseptic environment of the product bottling is achieved.

REFERENCES

Real Decreto 1518/2007, de 16 de noviembre, por el que se establecen parámetros mínimos de calidad en zumos de frutas y los métodos de análisis aplicables. Publicado en Boletín Oficial del Estado. Madrid. 8 de diciembre 2007. Núm. 294, pp. 50632-50639.

Real Decreto 650/2011, de 9 de mayo, por el que se aprueba la reglamentación técnico-sanitaria en materia de bebidas refrescantes. Publicado en Boletín Oficial del Estado. Madrid. 18 de mayo 2011. Núm. 119, pp. 50089-50093.