

## **APPLICATION OF UV-C TREATMENT OF HORCHATA DE CHUFA**

Pia Hofheinz, Michael Knörr, Volker Gräf, Alexandra Müller, Mario Stahl, Ralf Greiner. Department of Food Technology and Bioprocess Engineering, Max Rubner-Institut, Haid-und-Neu-Straße 9, 76131 Karlsruhe, Germany

UV-C treatment has been used for disinfection of drinking water for many years. Nevertheless, the application for other beverages like juices or soft drinks is limited. This is caused by specific product characteristics that influence penetration depth of the energy and therefore the efficacy to reduce microorganisms. To overcome this problem, UV-C technologies are often based on thin film, Dean vortex or turbulent flow applications.

Freshly produced Horchata de Chufa, a Spanish soft drink that is produced from tigernuts (*Cyperus esculentus* L.), has a relatively high microbial load ( $10^5$ – $10^6$  cfu ml<sup>-1</sup>). Because of undesired product changes such as gelatinisation of starch, heat pasteurisation should be avoided. UV-C treatment of Horchata de Chufa represents an alternative method to reduce its microbial load without generating adverse temperature-induced effects.

In this study, a UV-C inactivation device based on Dean vortex technology was used to evaluate reduction rates of natural-occurring microorganisms in Horchata de Chufa or those introduced by inoculation. The treatment resulted in a log 3 reduction of the total aerobic microbial count and in more than a log 5 reduction of the microorganisms introduced by inoculation (*Bacillus subtilis* HC5, *Microbacterium arborescens* HC2, *Rhizobium radiobacter* HC1, *Escherichia coli* DH5 $\alpha$ ) at a dose ( $D_{el}$ ) of 8 kJ L<sup>-1</sup>.

Even if UV-C treatment is capable of reducing the number of microorganisms significantly without heating, further studies are needed to elucidate the effect of UV-C technology on e.g. sensory attributes affecting consumers' preferences or compositional changes affecting product quality.



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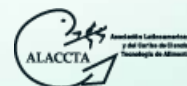


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