

عنوان مقاله:

Application of non-thermal plasma technology in the seafood industry

محل انتشار:

ششمین کنگره بین المللی تحقیقات شیلات و آبزیان (سال: 1401)

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خلاصه مقاله:

Non-thermal plasma (NTP) can be an innovative non-thermal preservation process for seafood. The non-thermal plasma, is a partially ionized gas, like any other plasma, but with energy (temperature) stored mostly in electrons and not in gas. Cold plasma is a very new disinfection method that is used to reduce the microbial population in raw, processed products and packaging materials. This process is used for heat-sensitive foods. The studies suggest that NTP could be an effective decontamination method for dried fish and seafood which does not reduce, or sometimes even improves the sensory quality of the final product. The NTP treatment is more effective in improving the shelf-life of dried and semi-dried seafood than of its fresh counterparts reducing not only the microbial loads but also water activity of the samples without negatively affecting the sensory properties of the product. However, the parameters of the treatment should be carefully designed for each type of treated product since longer treatments with high power can negatively affect the oxidation rates. Antimicrobial properties of NTP are controlled or influenced by numerous factors including the voltage, frequency, treatment time, working gas composition (WGC), post-treatment time/exposure time, and the surface area of the sample. However, several reactions occurring in seafood, particularly lipid and protein oxidation mediated by the reactive species generated by the NTP, have limited the application of this technology. The advantages of cold plasma include high and long-term effects, saving energy and water, reducing the production of greenhouse gases, having a very high environmental standard, the possibility of surface treatment at atmospheric pressure (ambient), dry process, and without use. He mentioned toxic or polluting chemicals

کلمات کلیدی:

Non-thermal plasma, Seafood, Shelf-life, Microbial population

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