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Ozone integrated with high intensity pulse electric field as non-thermal preservation on strawberry product

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Strawberries become commodities with high productivity. In Indonesia, one-hectare garden produces 74.82 tons of strawberries per year, with a selling value of Rs. 50.000,00 per kg. Strawberry fruit has a high nutrient content, such as vitamin C, which serves as an antidote to free radicals. However, strawberries and other products such as juices are susceptible to damage that causes harm and decreases food security. The damage is caused by contamination of *Escherichia coli* and *Listeria monocytogenes* microbes. Traditional processing is done by heat, but it can reduce the nutrient content, is a slow process, and only effective for liquid fruit product. The purpose of this research was to make a tool, to preserve fruits and fruit juice of strawberry by ozone integrated with high intensity pulse electric field (HIPEF). This tool is used to reduce bacteria in fresh fruit and liquid product, such as strawberry juice simultaneously, without reducing too much of the nutritional content of the product. This method uses the high voltage that generated by the electric generator. High voltage will produce ozone gas and produce electric shock, which called HIPEF. The result of output voltage is 35 kilovolts with 0.5-5 ppm ozone concentration, which frequency of this tool is 8 kHz and 142 μ s pulse width, to reduce the bacteria. It can treat strawberry products that have different phases (fresh fruit and strawberry juice). This research is expected to be non-thermal food processing that can help the community and government in improving the global food security of Indonesia.

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