

# The impact of ozone treatment in dynamic bed parameters on changes in biologically active substances of juniper berries

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## INTRODUCTION

Nowadays, the present health-conscious generation attaches great importance towards the intake of healthy and safe food [1]. Because of the numerous pharmacological properties of extracts and essential oils of juniper berries a proper decontamination method should be chosen, taking into account the biologically active compounds remaining after ozone treatment [2]. In view of the above, we designed the study to evaluate the effectiveness of ozone treatment in a dynamic bed of juniper berries.

## EXPERIMENTAL METHODS

Juniper (*Juniperus communis* (L.)) berries were cultivated in Wielkopolska (region of Poland) and delivered by herbal works KAWON–HURT, Poland (<http://www.kawon.com.pl>). The development of the parameters of ozone treatment method assuring the least possible losses of biologically active substances and its activity in common juniper (*Juniperus communis* (L.)) berries was studied. The process was conducted under different ozone concentrations (100.0; 130.0; 160.0 g O<sub>3</sub>/m<sup>3</sup>) and times (30, 60, 90 min). Samples were labelled as ozone concentration/time, for instance 100/30, 130/30 etc. The phenolic profile (LC-MS), as well as antioxidant activity (DPPH, FRAP, BCB) of extracts and essential oils were determined.

## RESULTS AND DISCUSSION

The study reveals that during short ozone contact times, higher amounts of TPC, 15.47 and 12.91 mg CE/g of extract, for samples 100/30 and 130/30, respectively, were demonstrated. Whereas samples 100/60, 130/60, 100/90, and 160/90 exhibited the lowest amount of phenolics. The highest antioxidant activity was found in the methanol extract obtained from ozonated berries which exhibited the lowest IC<sub>50</sub> in all the antioxidant assays, such as DPPH, FRAP, and BCB assays.

## CONCLUSIONS

The results of the present study revealed that berries of *Juniperus communis* (L.) treated as well as not treated with ozone are a rich source of phenolics. The various parameters (ozone concentration and contact time) in a dynamic bed do not significantly affect the quality of the berries, and even indicate better antioxidant activity after ozone treatment. Ozone treatment showed noteworthy potential and its usage in food manufacturing and as an alternative decontamination method should be considered.

## REFERENCES

1. Khadre M.A. et al. J Food Sci. 66:1242-1252, 2001.
2. Brodowska A. et al. Chemik. 68:97-102, 2014.

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