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CONGRESS**

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Aska Lara Resort & SPA, Antalya - TURKEY

1<sup>st</sup> International / 11<sup>th</sup> National FOOD ENGINEERING CONGRESS



**CONGRESS BOOK**

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Food Engineering Congress**



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## **Investigation of the Effect of Microwave-Vacuum Drying on the Quality Characteristics of Rosehips**

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Nowadays, the conventional hot air drying method is still widely used to preserve products that do not have a long shelf life such as fruit and vegetables. However, considering the quality losses of dried end products and long drying times with this method, alternative new drying techniques have now gained importance. Rosehips (*Rosa canina* L.) has a rich nutrient content due to its high antioxidant and phenolic compound content, especially vitamin C. Therefore, in this study, it was aimed to investigate the effect of microwave-vacuum drying technique on drying time and some quality characteristics of rosehips. It is also intended to compare with hot air and freeze-dried samples.

Rosehips were dehydrated by using both microwave-vacuum and hot air drying techniques until reaching below 10% moisture content on wet basis. Drying process with microwave-vacuum technique was carried out under three different microwave power (50, 100 and 150 W) and three different system pressure (40, 75 and 110 mbar) parameters. The hot air drying was carried out in a tray dryer at 60 °C. Drying curves of microwave-vacuum dried rosehips were extracted. The dried samples were subjected to physical (moisture content, water activity, color, rehydration rate, microstructure) and chemical (Vitamin C, total phenolic compound content, total antioxidant activity) analyses.

The drying times by microwave-vacuum method were between 75-195 minutes. In all chemical analysis results, the values of hot air dried samples were found to be the lowest. The total phenolic content was higher in all microwave-vacuum dried samples. The amount of vitamin C of the dried rosehips by the microwave-vacuum method was close to the freeze-dried rosehips and higher than the dried rosehips by hot air. Unlike hot air dried sample, microwave-vacuum and freeze-dried samples had similar colors, and redness ( $a^*$ ) values were found to increase compared to the fresh samples. While the microstructures of the microwave-vacuum and freeze-dried sample were observed to be open and porous, the samples dried with hot air were completely closed and had a non-porous structure.

**Key words:** Rosehips, Drying, Microwave, Vacuum, Hot air, Color, Vitamin C.

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