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HEAVY METALS CONTENT AND ESSENTIAL OIL YIELD OF *Juniperus phoenicea L.* IN DIFFERENT ORIGINS IN JORDAN

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Abstract

The present study was conducted to determine the heavy metals (Fe, Mn, Zn, Cu, Pb, and Cd) and essential oils content in the berries of *Juniperus phoenicea L.* grown in two different geographic origins; Dana conservation and Al-Hisha forest in Jordan. Atomic absorption and Hydrodistillation methods were used to determine heavy metals concentrations and oil contents in plant samples of *J. phoenicea L.*, respectively. Results showed that, the oil yielded from *J. phoenicea* L. berries in Al-Hisha was higher than that grown in Dana area (3.7 and 0.9%). Heavy metals contents were in variable concentrations in the order: Fe > Cu > Zn > Mn > Pb and Cd .Cu concentration in *J. phoenicea L.* berries varied from 31.51ppm in Dana to 71.86 ppm in Al-Hisha. It was higher than the maximum normal limits in plants (2.0-20 ppm). The concentrations of Fe, Zn, and Mn were very low and did not exceed their typical amount in non polluted plant. Toxic heavy metals Pb and Cd were not detected in all plant samples. The results indicated that, *J. phoenicea* L. can be used as an indicator of copper bioavailability from surrounding environment. The Berries of *J. phoenicea L.* grown in the south area of Jordan were rich in essential oils content but it was affected by geographic growth origin.

Key words: essential oil, heavy metals, Jordan, *Juniperus phoenicea L.*

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