Juniper essential oil characteristics determined

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Scientists evaluated Rocky Mountain juniper trees for changes in year-round essential oil content and composition. They found that the concentration of essential oil in fresh leaves varied, and that oil content in the male tree was greater than that of the female tree at most sampling points, thus demonstrating that both content and composition of essential oil from Rocky Mountain juniper are subject to seasonal changes and also depend on the sex of the tree.

Throughout the western United States, Canada, and Mexico, Rocky Mountain juniper (*Juniperus scopulorum Sarg.*) is known for its pleasant fragrance and valuable wood. The juniper's wood—highly valued for its durability, rich color, and pleasant aroma—is popular for use as interior paneling, furniture, and fence posts. For centuries, the leaves and berries of Rocky Mountain juniper, which contain strongly aromatic essential oil, have been used extensively by native people of North America to treat a number of medical conditions. A recent study evaluated several aspects of variations in essential oil composition and content of the popular tree.

Valtcho D. Zheljazkov and Ekaterina Jeliazkova from the University of Wyoming's Sheridan Research and Extension Center, along with Tess Astatkie of Canada's Dalhousie University, published their research results in the July 2013 issue of *HortScience*. "We thought that the essential oil content and composition may be different in male and in female trees and also may be affected with seasonal changes throughout the year," Zheljazkov explained. The team evaluated one male and one

female Rocky Mountain juniper tree over the course of 1 year. They found that the concentration of essential oil in fresh leaves varied from 0.335% to 0.799%. The team also determined that, at most of the sampling points, the oil content in the biomass of the male tree was greater than that in the biomass of the female tree.

"This study demonstrated that there are seasonal differences in essential oil content and composition within male or female trees. Also, at any given sampling point, the concentration of some oil constituents may be higher in the oil from the female trees, whereas the concentration of other oil constituents may be high in the oil of male trees," Zheljazkov said.

More information: The complete study and abstract are available on the ASHS HortScience electronic journal web site: hortsci.ashspublications.org/c … nt/48/7/883.abstract

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