



## **Volatile Organic Compound Emission from *Quercus suber*, *Quercus canariensis*, and its hybridisation product *Quercus afares***

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Oaks represent one of the most important plant genera in the Northern hemisphere and include many intensively VOC emitting species. The major group constitutes the isoprene emitters, but also monoterpene emitters and non-emitters can be found. These variations in the oak species might partly be due to their propensity for inter- and intraspecific hybridisation. This study addresses the foliar VOC production of the former hybridisation product the deciduous *Quercus afares* and its parents, two very distant species: the evergreen monoterpene emitter *Quercus suber* and the deciduous isoprene emitter *Quercus canariensis*. The measurements were performed in Southern France, applying two different methods. Plants were investigated in situ in the field with a portable gas exchange measuring system as well as in the laboratory on cut branches with an adapted enclosure system. *Quercus afares* was found to be a monoterpene emitting species. However, the monoterpene emission was lower and the composition different to that of *Quercus suber*. Whereas *Quercus suber* trees belonged to the pinene type most individuals of *Quercus afares* were identified to represent a limonene type. *Quercus canariensis* emitted besides high amounts of isoprene also linalool and (Z)-3-hexenylacetate. Emissions from *Quercus suber* and *Quercus afares* were higher in the field measurements than in the laboratory on cut branches whereas *Quercus canariensis* exhibited lower isoprene emissions from cut branches. The results demonstrate the need of further emission studies on a plant species level.