

Publication

Seasonal variation of leaf wax n-alkane production and $\delta(2)H$ values from the evergreen oak tree, *Quercus agrifolia***JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3115336**Author(s)** Sachse, Dirk; Dawson, Todd E.; Kahmen, Ansgar**Author(s) at UniBasel** [Kahmen, Ansgar](#) ;**Year** 2015**Title** Seasonal variation of leaf wax n-alkane production and $\delta(2)H$ values from the evergreen oak tree, *Quercus agrifolia***Journal** Isotopes in Environmental and Health Studies**Volume** 51**Number** 1**Pages / Article-Number** 124-42**Keywords** leaf wax, oak tree, hydrogen-2, isotope ecology, n-alkanes

In order to understand the timing of leaf wax synthesis in higher plants, we analysed the variability in leaf wax n-alkane concentration, composition (expressed as average chain length (ACL)), and $\delta(2)H_{wax}$ values as well as plant source water $\delta(2)H$ values (xylem and leaf water) in the evergreen tree *Quercus agrifolia* over a period of 9 months, beginning with leaf flush. We identified three distinct periods of leaf development with the first month following leaf flush being characterized by de novo synthesis and possibly removal of n-alkanes. During the following 3 months, n-alkane concentrations increased seven-fold and $\delta(2)H_{wax}$ and ACL values increased, suggesting this period was the major leaf wax n-alkane formation period. During the remaining 4 months of the experiment, stable values suggest cessation of leaf wax n-alkane formation. We find that n-alkane synthesis in *Q. agrifolia* takes place over 4 months, substantially longer than that observed for deciduous trees.

Publisher Taylor & Francis**ISSN/ISBN** 1025-6016 ; 1477-2639**edoc-URL** <http://edoc.unibas.ch/dok/A6381815>**Full Text on edoc** No;**Digital Object Identifier DOI** 10.1080/10256016.2015.1011636**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/25704898>**ISI-Number** WOS:000353503200012**Document type (ISI)** Journal Article