The ecological significance of pubescence in Saussurea medusa, a high-elevation Himalayan ”woolly plant”

ID 83689
Author(s) Yang, Y.; Körner, Christian; Sun, H.
Author(s) at UniBasel Körner, Christian ;
Year 2008
Title The ecological significance of pubescence in Saussurea medusa, a high-elevation Himalayan ”woolly plant”
Journal Arctic, Antarctic, and Alpine Research
Volume 40
Number 1
Pages / **Article-Number** 250-255
Several members of the vascular plant genus Saussurea, which are found at elevations exceeding 5000 in, have dense layers of woolly trichomes on their leaves, bracts, and inflorescences, the function of which is not fully understood. Here we explore the thermal benefits of pubescence in Saussurea medusa, both in situ in the Chinese Hengduan Mountains and under controlled conditions. Mean daytime inflorescence temperature was 5.9 K above air temperature. Pubescence removal revealed that most of this warming is not related to pubescence but to radiant warming of the compact inflorescence itself (4.1 K warming in shaved plants, i.e. 1.8 K less). The effect of pubescence on nighttime radiative cooling was negligible. Our data indicated that the functional role of pubescence in these high-elevation plants cannot be attributed solely to producing warming tissues, but may also include other functions such as water repellency and reflection of short peaks of high radiation. These other functions must be specific to a small group of species, given that most other high elevation taxa do not exhibit this woolly character.
Publisher Institute of Arctic and Alpine Research [of the] University of Colorado
ISSN/ISBN 1523-0430 ; 1938-4246
edoc-URL http://edoc.unibas.ch/dok/A5250818
Full Text on edoc Available;
Digital Object Identifier DOI 10.1657/1523-0430(07-009)[YANG]2.0.CO;2
ISI-Number 000252869000027
Document type (ISI) Article