



Mechanics and morphology of permanent attachment systems in plants

By Tina Steinbrecher

Shaker Verlag Mrz 2011, 2011. Taschenbuch. Condition: Neu. Neuware - Permanent attachment pads of climbing plants are an example of highly efficient attachment structures, which have been evolved, tested and optimized in the course of evolution. However, information about the attachment mechanisms is still scarce, although the excellent mechanical performance of attachment structures has been recognized. In this study, the morphology and the biomechanics of attachment pads of Boston Ivy (*Parthenocissus tricuspidata*) as well as the interface between the pad and different substrates were investigated. The self-clinging liana *P. tricuspidata* develops swollen tips at the end of its tendrils which form into attachment pads. Attached and non-attached structures were analyzed using microscopical and mechanical testing methods. The overall strength of the interface was studied using tensile tests on a large number of individual pads attached to different substrates. On the micrometer-scale, the mechanical properties of the constituent materials were studied using nanoindentation. Ontogenetic variations in the morphology of attached and non-attached structures were observed. Cell size, cell orientation and grade of lignification vary over the pad cross-section normal to the interface. Furthermore, cell size, cell wall thickness as well as cell orientation show variations in the plane of the interfacial...



READ ONLINE
[8 MB]

Reviews

Just no phrases to describe. It typically does not price an excessive amount of. It is extremely difficult to leave it before concluding, once you begin to read the book.

-- Felton Hessel

This is actually the finest publication i actually have study right up until now. We have study and so i am confident that i am going to planning to go through again in the foreseeable future. I am just effortlessly will get a delight of studying a published book.

-- Lori Bernier

Other eBooks



Children s Educational Book: Junior Leonardo Da Vinci: An Introduction to the Art, Science and Inventions of This Great Genius. Age 7 8 9 10 Year-Olds. [Us English]

Createspace, United States, 2013. Paperback. Book Condition: New. 254 x 178 mm. Language: English . Brand New Book ***** Print on Demand *****.ABOUT SMART READS for Kids . Love Art, Love Learning Welcome. Designed to expand and inspire young minds; this is...



Children s Educational Book Junior Leonardo Da Vinci : An Introduction to the Art, Science and Inventions of This Great Genius Age 7 8 9 10 Year-Olds. [British English]

Createspace, United States, 2013. Paperback. Book Condition: New. 248 x 170 mm. Language: English . Brand New Book ***** Print on Demand *****.ABOUT SMART READS for Kids . Love Art, Love Learning Welcome. Designed to expand and inspire young minds; this is...



Welcome to Bordertown: New Stories and Poems of the Borderlands

BRILLIANCE AUDIO, United States, 2015. CD-Audio. Book Condition: New. Unabridged. 170 x 135 mm. Language: English . Brand New. Audie Award Finalist: Best Short Story Collection Bordertown: a city on the Border between the human world and the elfin realm. A place...



Cool Cars: Set 12: Non-Fiction

Pearson Education Limited. Paperback. Book Condition: new. BRAND NEW, Cool Cars: Set 12: Non-Fiction, Emma Lynch, This title is part of Phonics Bug - the first Phonics programme to bring together research-based teaching methods with 100% decodable books, CBeebies video, and an...



Fantastic Fish: Set 12: Non-Fiction

Pearson Education Limited. Paperback. Book Condition: new. BRAND NEW, Fantastic Fish: Set 12: Non-Fiction, Emma Lynch, This title is part of Phonics Bug - the first Phonics programme to bring together research-based teaching methods with 100% decodable books, CBeebies video, and an...



Snails: Set 12: Non-Fiction

Pearson Education Limited. Paperback. Book Condition: new. BRAND NEW, Snails: Set 12: Non-Fiction, Emma Lynch, This title is part of Phonics Bug - the first Phonics programme to bring together research-based teaching methods with 100% decodable books, CBeebies video, and an online...