

are in fact adaptive in both cases (i.e. can different and even opposite trait responses increase fitness in different species under a given set of external stimuli?). Proof of adaptive plasticity also requires analysis of fitness in multiple environments.

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Key words: adaptation, aquatic macrophytes, evolution, morphology, phenotypic plasticity.

Letters

The Cohesion-Tension Theory

In the June 2004 (162: 3) issue of *New Phytologist*, U. Zimmermann *et al.* published a Tansley review that criticizes the work of many scientists involved in the study of long-distance water transport in plants (Zimmermann *et al.*, 2004). Specifically, the review attempts to 'show that the arguments of the proponents of the Cohesion Theory are completely misleading'. We, the undersigned, believe that this review is misleading in its discussion of the many

recent papers which demonstrate that the fundamentals of the Cohesion-Tension theory remain valid (Holbrook *et al.*, 1995; Pockman *et al.*, 1995; Steudle, 1995; Milburn, 1996; Sperry *et al.*, 1996; Tyree, 1997; Melcher *et al.*, 1998; Comstock, 1999; Stiller & Sperry, 1999; Tyree, 1999; Wei *et al.*, 1999a; Wei *et al.*, 1999b; Cochard *et al.*, 2000; Cochard *et al.*, 2001a; Cochard *et al.*, 2001b; Richter, 2001; Steudle, 2001; Cochard, 2002; Tyree & Zimmermann, 2002; Tyree, 2003; Tyree & Cochard, 2003; Tyree *et al.*, 2003). We wish the readers of *New Phytologist* to know that the Cohesion-Tension theory is widely supported as the only theory consistent with the preponderance of data on water transport in plants.

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Key words: cohesion-tension theory, Tansley reviews, long-distance transport, water transport, xylem.

Editorial

Tansley reviews

Authors of Tansley reviews, which are fully peer-reviewed papers, are asked to consider two major themes in their writing. First, to deal with major research topics in some depth – to provide a ‘touchstone’ for those intending to enter the field. Second, to consider the review less as an exercise in literature documentation and more as a forum for the presentation of ideas. The balance between these two themes varies widely, depending on the subject and the individual, but we aim to make the distinction clear.

Where views and opinions are expressed in a Tansley review, or indeed any *New Phytologist* paper, these naturally belong to the authors. This is, we believe, clearly the case in the writing of the Tansley review by Zimmermann *et al.* in our June 2004 (162: 3) issue (Zimmermann *et al.*, 2004).

The Tansley reviews and our forum section encourage debate in *New Phytologist*. We therefore welcome discussion, in this instance concerning the work of Zimmermann *et al.* through the comments of Angeles *et al.* (2004), which complement recent and relevant publications in *New Phytologist* by Brodribb & Holbrook (2004) and Sperry (2004).

Ian Woodward
Editor-in-Chief

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Key words: Tansley reviews, peer review, forum, cohesion-tension theory, long-distance transport, water transport, xylem.

Letters

How dangerous is the use of fungal biocontrol agents to nontarget organisms?

Biological control of plant pathogens is a method based on the antagonism between microorganisms (Andrews, 1992) – fungi or bacteria known to be antagonistic to a given plant pathogen are artificially multiplied and then released into an agricultural field to control a plant disease. Most biocontrol agents (BCAs) of plant diseases, similar to most plant pathogens they control, are fungi. Their use is considered, in general, as a safe and environmentally friendly alternative for plant

disease control compared to the application of conventional pesticides (Whipps & Lumsden, 2001). Recently, Brimmer & Boland (2003) published a review of the nontarget effects of fungal BCAs of plant pathogens in which they attempt to demonstrate the way in which many hazards may be associated with the use of fungi as BCAs of plant diseases. However, as the examples highlighted here indicate, their case was based mainly on unsubstantiated statements, which might mislead and be detrimental to the application of BCAs in the future.

Brimmer & Boland (2003) use expressions such as ‘significant environmental impacts’, ‘significant threat’ and ‘unforeseen ecological repercussions’ in order to dramatize suggested damaging effects of fungal BCAs. However, none of the data reviewed in the paper support these serious warnings. Similarly, key statements such as ‘released BCAs have the