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Retraction

Morphology and mechanics of the adhesive disc of liana *Parthenocissus tricuspidata* (T. He, L. Zhang, H. Xin, W. Deng). *Pure Appl. Chem.* **82**, 91–96 (2010); doi:10.1351/PAC-CON-08-12-06

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page 92: paragraphs 1 and 2 under "Microstructure"

Each tendril of *P. tricuspidata* is made up of a main axis with five to nine branchlets alternately attached, at the tip of the branchlets there is a small swelling, which after the stimulus of contact develops into an adhesive disc (Fig. 1a). The branchlet appears to be a warty protrusion protected by a scale and finally bursts. The preformed swollen tip, i.e., the young adhesive disc, is uncovered. During the subsequent development, the branchlet elongates and the epidermal cells of the adhesive disc begin to swell and finally develop into a round shape, leading to the compact appearance of the hemispherical cells.

Prior to contact stimulation, the mature adhesive disc is bulbous and is composed of a central area of largely parenchymatous cells encircled by a peripheral area with three to six layers of cells which in the early development are approximately isodiametric in shape. When stimulated by contact, most of the epidermal surface of the adhesive disc is covered by an adhesive fluid secreted by the epidermal cells. The fluid seems to harden when exposed to air. Simultaneously, the adhesive disc expands greatly in size, and when it firmly attached to the substrate, the tendril stalk contracts spirally. During the development of the adhesive discs, the epidermal cells in contact with the substrate become extremely elongated vertically (Fig. 1b arrow). These elongated cells thus form a brush-like pattern and force themselves into all the depressions of the surface of the substrate; in this way they tie up the whole branch. The remaining compactly distributed epidermal cells swell and divide anticlinally, thus form a pattern like a cluster of balloons.

page 95: paragraph 1 under "CONCLUSIONS"

The self-clinging liana *P. tricuspidata* climbs with tendrils to maintain upright growth. It develops adhesive pads at the end of the tendrils that attach themselves quite strongly to the support.

Although the outstanding mechanical behavior of *P. tricuspidata* has been recognized, no systematic investigations of the microstructure, the mechanics and the mechanism of adhesion have yet been performed. In order to understand in which way the plant achieves the strong adhesion, we study the morphology of the adhesive discs of *P. tricuspidata.* Microstructural investigations indicate a perfect form closure between the adhesive disc and substrate. Also, structural gradients were observed, i.e., variations in cell dimension and shape. These structural changes are related to the changes in mechanical properties of the adhesive discs.

REFERENCES

1. S. Junker. *New Phytologist* **77**, 741 (1976).
2. A. G. Endress, W. W. Thomson. *Protoplasma* **88**, 315 (1976).
3. T. Steinbrecher, T. Speck, O. Kraft, R. Schwaiger. *Comp. Biochem. Physiol., Part A: Mol. Integrative Physiol.* **150**, Suppl. 1, S88 (2008).

