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The venation network in leaves as anticracks?[1] PEDRO REIS, DENIS VALLET, BENOIT ROMAN, Laboratoire PMMH (UMR 7636 CNRS-ESPCI-P6-P7), MECHPLANT TEAM — Thus far, existing models of venation in leaves are entirely biochemical, involving hormonal diffusive processes. These are, however, unable to capture some crucial structural features of the vascular bundles' network such as the existence of reconnection loops. Couder et. al. [1] have recently highlighted the striking similarities between leaf venation and fracture patterns in drying gels, suggesting that a tensorial mechanism may be at play. It is known that, in the initial stages of the formation of vascular bundles, the promesophyll (leave's *bulk*) is under compression since it grows at a faster rate than the protoderm (leave's *skin*). Hence, to take this analogy further, we introduce the concept of an *anticrack*: a localization of deformation under compressive stresses. We have developed an experimental system to develop and explore this concept as when a solid foam is compressed, either uniaxially or biaxially. We analyze the resulting anticrack networks and relate them to the fracture and venation counterparts. For this purpose we use a high resolution image correlation technique to measure the statistics of the localization zones, structural hierarchy and reconnection loops. [1] Y. Couder, L. Pauchard, C. Allain, M. Adda-Bedia and S. Douady, *Eur. Phys. J. B* **28** 135 (2002).

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