

Section 3 Abstracts: Chestnut Tree Breeding, Propagation and Physiology

Effect of the *in vitro* Conditions on the Glandular Trichomes of *Castanea saliva*. *Ma* Luisa Vieitez¹ and R. Salema².¹ Department of Plant Physiology, 15080 Santiago de Compostela, SPAIN; and, ²Experimental Cytology Centre (INIC) and Botany Institute, University of Porto, PORTUGAL

Samples from leaves of *Castanea saliva* were collected from plants grown under outside conditions and from plantlets developed in culture tubes. Various developmental stages were examined with a light microscope, scanning (SEM) and transmission (TEM) microscope. Very young leaves showed a variety of surface extensions in the form of both hairs and glands. Hairs were always located over the veins or on surrounding grounds; they were unicellular and simple and most abundant on the abaxial surface. At least 3 types of glands could be seen, two capitate, and one, a simple, articulate filament. During *in vivo* development of leaves, glands and hairs gradually fade away, becoming almost absent in mature leaves. Leaves, developed *in vitro*, appeared to have mostly capitate glands and very few of either of the other types. Light microscope and TEM study showed that leaves about 1-cm long were in totally different developmental stages when comparing *in vivo* with *in vitro* material, the latter were still in the meristematic stage, whereas the former were in a differentiated stage. Even the most differentiated *in vitro* leaves had a loosely arranged palisade tissue only one layer deep (a typical shade-type anatomy), strongly contrasting with normal leaves. The meristematic stage of many of the *in vitro* leaves had large intercellular spaces and very thin cuticle that might well be related to the difficulty of acclimation when those plantlets are transplanted.