Section 3 Abstracts: Chestnut Tree Breeding, Propagation and Physiology

Micropropagation of Juvenile and Adult *Castanea sativa* by Using Thidiazuron. Eva Wilhelm and Pattamarat Rodkachane. Research Centre Seibersdorf, A-2444 Seibersdorf, AUSTRIA

The importance of rapid propagation methods for woody plants has been increased in the last years in order to improve tree breeding programs. To establish a reliable micropropagation system for *Castanea sativa,* thidiazuron (a plant regulator with cytokinin activity) has been evaluated for its shoot proliferation capacity. Shoot tips and nodal segments from 6-wk-old seedlings of different varieties, and grafted adult clones, were used as explant sources. Explants were established on GD and 1/2 NO3 MS media (Gresshof and Doy 1972, Murashige and Skoog, 1%2). Hormone concentrations ranged from 0.02 mM to 0.05 mM TDZ with and without 2.25 mM BAP. For further multiplication, segments of 1.5-2.5 cm length were transferred every 6 wk to GD media with lower hormone concentrations (0.02-0.04 mM TDZ, 0.7 mM BAP, 1.7 mM IAA and 0.9 mM GM). GD media proved to be better than MS media. The results indicate that after induction, one subculture with high thidiazuron improved the subsequent micro-propagation. Continuous transfer to thidiazuron promoted massive callus growth and inhibited the shoot elongation necessary for successful rooting. There were strong clonal differences in the multiplication rate. Shoots from 3 to 5 cm length were rooted with IBA used at different levels (15 mM to 123 mM) and for different lengths of time (3 to 14 days). Rooting success was nearly 100% with shoots derived from seedlings, but with the adult clones only 40% rooting was achieved. Rooted plantlets were transferred and weaned in the greenhouse under high humidity.