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Jean-François Trontin started to work in the field of plant micropropagation in 1991 and soon began to focus on forest trees (1993). He got a PhD in forest biology in 2000 from the University H. Poincaré Nancy I, France (genome structure and evolution in larch and oak) and joined AFOCEL (2000-2007) and then FCBA (since 2007), the French Industrial Technical Centre dedicated to reinforcing the industrial competitiveness of the forestry, wood, pulp and paper, construction and furniture sectors. J.-F. Trontin is a scientific leader at FCBA Biotech & Advanced Forestry Dpt (Bordeaux, France) with high interests in promoting biotechnology inputs to conventional breeding (conservation, selection, genetic modification and propagation of genetic resources). His recent research is dedicated to the development and practical implementation of vegetative propagation technologies into breeding programs through multi-varietal forestry of conifers based on somatic embryogenesis. J.-F. Trontin is leading the “Biology” scientific thematic area at FCBA and is coordinating a national technological platform dedicated to forest biotechnologies (XYLOBIOTECH). He has been strongly involved since 2008 in the coordination of the IUFRO 2.09.02 Working Party,

Opportunities and challenges of tissue culture in forest trees with a focus on conifers

Forests and forest-wood sector are considered as key players towards de-carbonation of the economy worldwide and mitigation of climate change. It is the dynamic forest management for wood production that would likely contribute to reduce (carbon sequestration) or prevent greenhouse gas emission (material and energy substitution) while increasing the flexibility to adapt forests to climate change. Intensively managed plantation forests are expected to play a major role, especially faster-growing and more successful conifers for reforestation. This will require however significant capacity to produce high-quality seedlings at reduced cost. Reproduction strategies of selected varieties based on vegetative propagation may therefore become more essential in the near future to continuously improve upon wood biomass production. Micropropagation technologies are promising for scaling-up the production of many forest tree species, especially conifers. However forest biotechnologists are facing recurrent problems for decades, i.e. low genotype capture and yield during the process and poor plant quality compared to reference seedlings. The presentation will highlight some ongoing tissue culture strategies and challenges to make biotech forest a reality in the bioeconomy era.