Raquel Lobo-do-Vale
Forest Research Centre
DRAT, School of Agronomy, University of Lisbon
Forestry Building - room 2.31
Tapada da Ajuda, 1349-017 Lisboa
Portugal
Tel: +351 213653345
raquelvale@isa.ulisboa.pt

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CONCERNING | Short Term Scientific Mission – Raquel Lobo do Vale – Scientific report

Dear Dr. Jozica Gricar,

Dear Dr. Elisabeth Robert,

I went to a STSM at the APNA laboratory (Vrije Universiteit Brussel, Belgium) between July, 22nd and August 8th, to assess the wood anatomy of seedlings of the three studied tree species in my post-doc working programme (*Quercus suber*, *Pinus pinea* and *Eucalyptus globulus*), before, during and after stress imposition.

I started using a small sub-set of samples of the three species for micro-CT-scanning (Skyscan 1172) in order to select the scanning details needed for each species. Then I learned how to obtain transverse stem sections by the classical micro-sectioning method and prepared a set of samples for each species for stems and roots. Micro-CT-scanning revealed high quality image for anatomical measurements (particularly vessel identification) of *Quercus suber* and *Eucalyptus globulus* but not for *Pinus pinea* , where classical micro-sectioning was the most appropriate. So, I proceeded with micro-CT-scanning in stem samples of *Q. suber* and *E. globulus* obtained before and during stress imposition (from April and July 2014, respectively). I was also introduced to the ImageJ (Image Processing and Analysis in Java, NIH, USA), that is used for the anatomical measurements (vessel density, vessel diameter, vessel grouping and proportion of phloem to xylem).

The first approach to the image analysis revealed interesting changes in stem anatomy of *E. globulus* between sampling dates and treatments. A thorough analysis in underway and we are looking forward for the samples from the last sampling date (after stress imposition, in October 2014) to complete the dataset. By then, the samples will be send to the APNA laboratory and Dr. Elisabeth Robert will supervise the Micro-CT scanning.

We are confident that the data obtained will elucidate about the wood anatomical flexibility of this species in relation to drought and warming and a scientific publication in an international journal will come out, either with this results by themselves or integrated with leaf physiology data.

I would like to thank to Dr. Elisabeth Robert for receiving me and to the phD student Nathalie Tonné, for all the assistance with the Micro-CT scan and image processing.

Finally, you have my authorization to post the report at the COST-action STReSS website.

Raquel Lobo do Vale