ABSTRACT

"Virtual Leaf 2.0: An improved tool to model plant growth regulation"

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Virtual leaf is a software package that we developed for the simulation of hormone transport and growth regulation in multicellular plant organs. Over the last few years we have further refined this tool, so that we will be able to release a completely new version soon. Improvements encompass technical aspects such as a version tracking system for the software development, output to a standard format (hdf5) for import in external viewers and code optimization for faster performance. In terms of biology we have developed adaptations to enable the modelling of root tipgrowth. We also implemented more physiological realistic models for the regulation of cell expansion and cell division. Finally we have developed bifurcation analysis techniques to investigate the effect and importance of individual model parameters on the overall behaviour.