

## The lack of aluminum has a negative impact on *Qualea dichotoma* (Mart.) warm (*Vochysiaceae*) metabolism and anatomical structure

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*Qualea dichotoma* (Mart.) warm (*Vochysiaceae*) is adapted to high aluminum ( $Al^{3+}$ ) contents in soils. The present study seeks to contribute to the understanding of the role of this metal on growth and development of native species of Brazilian savanna. Therefore, *Q. dichotoma* seedlings were grown with and without Al for 120 days. After 60 days of cultivation, the control plants (no Al) presented reduced chlorophylls A E B and carotenoids contents when compared with those grown with Al. The histochemical analysis (hematoxylin) showed high coloration intensity in leaves (midveins), as well as in stems and roots of Al-treated plants. GC-MS based metabolic analysis also detected differences in metabolite contents between control and Al-treated plants. Leaves of control plants had significantly higher amounts of malate, citrate, glyceric acid, pyroglutamic acid. In addition, in roots the amount of the amino acid serine was significantly higher in control plants. The data strongly indicates that control plants were under stress due to the lack of Al, which may be associated with the high levels of organic acids in these plants. Thereby, Al appears to be required for proper growth and development of this species. Additionally, myo-inositol and quinic acid and sucrose in leaves and roots of treated plants may be related to reactive oxygen species (ROS) assisting the plants for better development and adaptation in acidic soils. Based on the results, Al may play an important role on *Q. dichotoma* metabolism.

### Biography

Michelle de Souza Fayad Andre is pursuing his Post-doctoral studies at the Plant Molecular Laboratory in the Department of Botany, University of Brasilia. She is also a Junior Researcher at the University of Brasilia. Her current work is a part of an ongoing research project entitled "The understanding of the role of aluminum on the growth and development of Brazilian savanna flora".

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