

I. Heat stress in *Triticum*: kinetics of Ca and Mg accumulation

Ana S. Dias^{1,2*}, Fernando C. Lidon^{1,3} and José C. Ramalho⁴

¹ Grupo de Disciplinas de Ecologia da Hidrosfera, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Quinta da Torre, 2829-516 Caparica, Portugal.

² Instituto Nacional de Investigação Agrária, Instituto Nacional dos Recursos Biológicos, I.P., Estrada de Gil Vaz, Elvas, Portugal.

³ Unidade de Biotecnologia Ambiental / FCT-UNL, 2829-516 Monte de Caparica, Portugal.

⁴ Centro de Ecofisiologia, Bioquímica e Biotecnologia Vegetal / Instituto de Investigação Científica Tropical I.P., Quinta do Marquês 2784-505 Oeiras, Portugal.

* Corresponding author: Phone/Fax: 00351212948543; anasofia.almeida@mail.com.

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ABSTRACT

In heat stressed genotypes of *Triticum aestivum* L. (Sever and Golia) and *Triticum turgidum subsp. durum* (Acalou and TE 9306), chosen according to its genetic background diversity, Ca and Mg accumulations were correlated with its photosynthetic performance. It was found that with high temperatures the concentrations of Ca increased in the shoots, whereas the accumulation of Mg augmented only in bread wheat genotypes. Under heat stress, the pattern of electrolytes release in Golia and Acalou remained similar, but the extrusion rates became higher in Sever. During grain filling, the levels of total chlorophylls decreased in the heat stressed genotypes (excepting in Sever). In all the *Triticum* genotypes, stomatal conductance and the net carboxylation rate displayed similar trends. After anthesis, the net carboxylation rates did not vary in Acalou and TE 9306 but changed significantly in the heat stressed bread wheat, being found antagonistic patterns in both genotypes. During grain filling, the mean internal CO₂ concentration only increased significantly in the heat stressed Golia. In Golia and TE 9306, the transpiration rates didn't vary between the control and heat stress treatments, but in Sever and Acalou, significant increases were found. Our data identified synergistic patterns among Ca, Mg, chlorophylls accumulation, and stomatal conductance, whose implications on photosynthesis are discussed.

Key words: *Triticum aestivum* L.; *Triticum turgidum subsp. durum*; net photosynthesis; nutrients uptake and translocation; stomatal conductance.