The contribution of mitochondrial metabolism in photosynthesis

Adriano Nunes Nesi

Max-Planck Partner Group, Departamento de Biologia Vegetal, Universidade Federal de Viçosa, 36570-900 Viçosa, Minas Gerais, Brazil

Email: nunesnesi@ufv.br

Increasing compelling evidence suggest an essential role for mitochondrial metabolism in governing photosynthetic performance. Indeed, different approaches have underscored the interconnection between photosynthesis and respiration. However it remains rather unclear which are the main players involved in the regulation of these two processes. In addition it seems that the interactions between these two processes are most likely more numerous and complicated than previously thought. These observations strongly indicates that much further research is required to fully understand how chloroplast and .mitochondrial metabolism are coordinated in plants growing under optimal and extreme environmental conditions. In this vein, broad physiological studies exploring the natural variation of photosynthetic and growth parameters as well as transcript and metabolite profiles will allow the identification of candidate genes involved in the regulation of energy metabolism, plant growth and productivity as well as plant stress responses. During my talk the different mechanisms by which mitochondria modulates photosynthesis and plant growth will be discussed.

Key words: TCA cycle; respiration; photosynthesis.