

Succinate dehydrogenase is a source of reactive oxygen species in plants and regulates development and stress responses

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The non-competitive inhibition of SDH increases ROS production in both isolated plant mitochondria and protoplasts

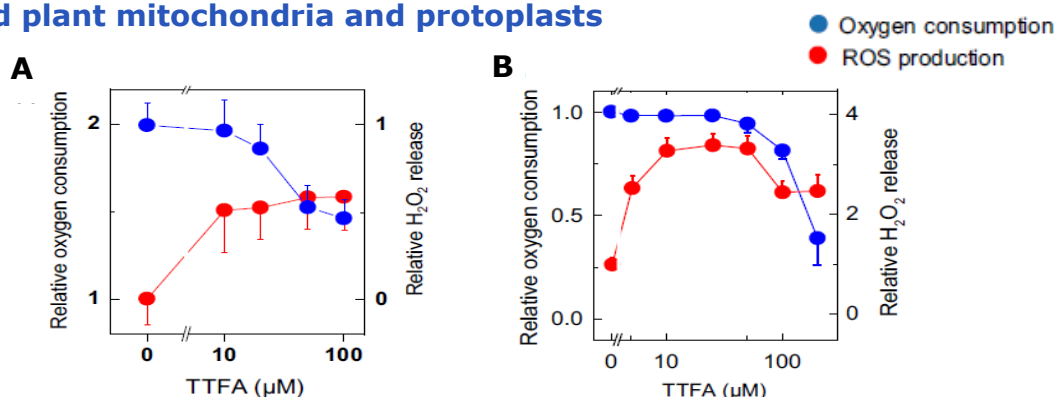


Figure 1. TTFA induces ROS production in *Arabidopsis thaliana*. Different preparations were assessed in order to determine the mechanism of ROS production in the S-pathway on different organelles of the plant cell. **A.** Isolated mitochondria **B.** Isolated protoplasts. TTFA is thenoyltrifluoroacetone, an irreversible non-competitive inhibitor of the succinate dehydrogenase.

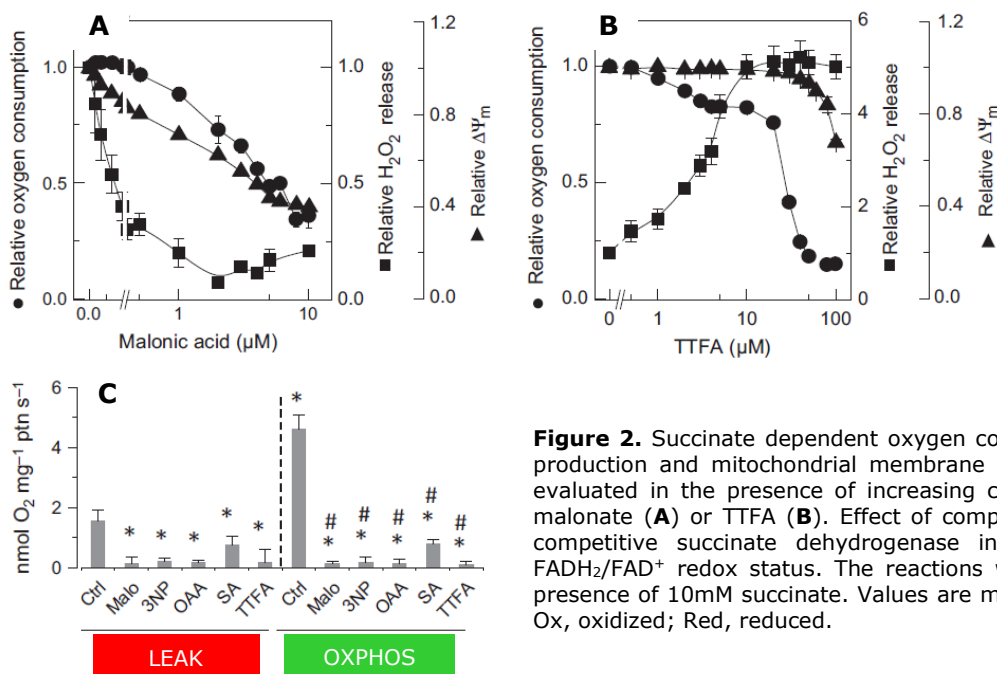


Figure 2. Succinate dependent oxygen consumption, ROS production and mitochondrial membrane potential ($\Delta\Psi_m$) evaluated in the presence of increasing concentrations of malonate (**A**) or TTFA (**B**). Effect of competitive and non-competitive succinate dehydrogenase inhibitors on (**C**) $FADH_2/FAD^+$ redox status. The reactions were initiated in presence of 10mM succinate. Values are mean \pm SE ($N=8$). Ox, oxidized; Red, reduced.

SDH is an important site of ROS production in plant mitochondria, playing an important role in regulating plant development and responses to stress. Different molecules can physiologically control SDH-dependent ROS production by

Reference: Jardim-Messeder D, Carvezan A, Rauber R, de Souza Ferreira E, Margis-Pinheiro M, Galina A (2015) Succinate dehydrogenase as a source of ROS in plants. New Phytol.