

EFFECTS OF SALICYLIC ACID ON MITOCHONDRIA ISOLATED FROM BLACKBERRY (*RUBUS FRUTICOSUS*) CELL SUSPENSION CULTURE

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Salicylic acid (SA), a phenolic compound, is a secondary signaling molecule involved in plant self-defense. It regulates a number of physiological processes, including the hypersensitive response (HR), a form of programmed cell death (PCD) at the site of pathogen infection, controlling its development. Mitochondria play an important role in PCD, and SA is implicated in HR-induced plant resistance. The aim of this study was to characterize the mitochondria isolated from blackberry cells and to evaluate the effects of SA on this system. The blackberry mitochondria comprise respiratory complexes I-V, alternative oxidase (AOX), external NADH dehydrogenase and uncoupling protein (PUMP). SA either uncoupled mitochondria or inhibited electron transport of organelle in a dose-dependent manner, depending on the respiratory substrate employed. When succinate was used, SA (1-10 mM) inhibited the O₂ consumption, while when NADH was used, SA demonstrated an uncoupling effect. SA (5 mM) also stimulated, by around 25%, the production of reactive oxygen species by mitochondria, which are directly involved in the hypersensitive cell death. Key words: salicylic acid, hypersensitive response, programmed cell death, mitochondria. Thanks to CAPES.