

**RELATIONSHIPS BETWEEN THE MODULATION OF PROTON PUMPS AND  
HORMONAL SIGNALING DURING THE RIPENING PROCESS OF  
TOMATOES (*Solanum lycopersicum*) FRUITS.**

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Ethylene and abscisic acid (ABA) are phytohormones that modulate many processes, including fruit ripening. Mutant tomatoes for ethylene perception (never ripe, *nr*) and a double mutant non responsive to ethylene and ABA (*nrxsit*) were studied in order to investigate how the hormonal regulation of main H<sup>+</sup>-ATPases of fruit influence the morphological changes related to the fruit ripening and senescence. To this propose it was evaluated the ethylene production, fruits respiration and the P and V-types H<sup>+</sup>-ATPase activities during 3 maturation stages of these genotypes. Ethylene rate emission of the wild fruits was observed a hormonal peak in the 5<sup>th</sup> day after harvesting, indicating that the fruit enters into climateric. Conversely, there was also an increase of ethylene emission in fruits *nr*, however lacking the characteristic ethylene peak, and a reduction was found in the last day of analysis in the *nrxsit* fruits. The CO<sub>2</sub> production indicates that between the genotypes there is little difference in respiratory rates, being only observed a peak of CO<sub>2</sub> emission in the *nrxsit* fruits. Hydrolytic activities of P and V-types ATPases increased in both *nr* and *nrxsit* fruits, during the 3 maturation stages. Pumps activation in fruits with low sensitivity to the ethylene in conjunction with our previous data, which demonstrate an P-ATPase activation preceding the ethylene peak, may indicate a possible enzyme inhibition by ethylene.

Key Words: Proton pums, hormones