

The interaction between ethylene and polyamines during ripening of olive fruit

T. Ardila, M.J. Redondo-Cuadrado, M. Gallardo, I.M. Sanchez-Calle, M.C. Gomez-Jimenez

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Abstract

Ripening is a complex and highly regulated phenomenon involving many endogenous and environmental factors, all of which must be correctly balanced in order to achieve the best fruit quality. Ripening control in olive is an important issue because, owing to early harvest and long storage times, fruit quality (oil/canning) can deteriorate before reaching the consumer. Ethylene and polyamines are known to have opposite effects in relation to fruit ripening and senescence. In fact, polyamine and ethylene physiologies may be linked during fruit development. This work describes the changes in endogenous free polyamines levels and ethylene production during fruit development from two cultivars of *Olea europae* L. ('Arbequina' and 'Picual'). Ethylene production (the 1-aminocyclopropane-1-carboxylic acid (ACC) level) has been determined by gas chromatography and polyamine content (putrescine, spermidine and spermine) by dansylation and separation of dansyl derivatives by HPLC. To investigate the relationships between ethylene and free polyamines in olive fruit, the effect of exogenous polyamines (putrescine and spermidine) and aminoxy-acetic acid (AOA, inhibitor of ethylene biosynthesis) on polyamines and ACC levels was also examined in ripening olive fruit. Fruit treatments were performed in planta.