

Abstract:

It has been found previously that methyl jasmonate (JA-Me) applied in lanolin paste induced gummosis in bulbs, stems and basal part of leaves of tulips. In this work we report the interaction of JA-Me with ACC in regulation of the following physiological processes in uncooled and cooled, derooted bulbs of 'Apeldoorn' and 'Oxford' tulips: gum induction, ethylene production, ACC oxidase activity, anthocyanin accumulation, and CO₂ evolution. JA-Me greatly increased ethylene production from simultaneously applied ACC, through stimulation of ACC oxidase activity, in comparison to ACC applied alone. ACC evidently inhibited anthocyanin accumulation induced by JA-Me applied simultaneously. CO₂ evolution was similar after treatment with JA-Me and ACC. Simultaneous application of JA-Me + ACC increased CO₂ evolution in uncooled derooted bulbs in comparison to JA-Me and ACC applied alone. Similarly, as was previously reported, simultaneous application of JA-Me with ACC induced gum formation more than these compounds applied individually. Thus, interaction between JA-Me and ACC (ethylene) is synergistic or antagonistic in regulation of some physiological processes in tulips.