

Effects of the gibberellins A4+7 (GA4+7) and A3(GA3), benzyladenine (BA) and forchlorfenuron (CPPU) on deposition of the cuticular membrane (CM) in developing tomato (*Lycopersicon esculentum* L.) fruit were investigated. Growth regulators were applied when fruit development within trusses ranged from the flower to the mature stage. Developmental stage of fruit at the time of application was indexed by fruit diameter. Fruit were harvested at maturity, the CM isolated enzymatically on an individual fruit basis and mass of CM per unit fruit surface area calculated. In mature fruit, mass of CM per fruit increased with fruit size, but mass of CM per unit surface area was independent of fruit size, position within a truss and position of the truss on the plant. GA4+7 and GA3 increased CM mass per unit fruit surface area at concentrations up to 300 mg l⁻¹. Young fruit (5–10 mm diam. at time of application) was most responsive. Responsiveness decreased as fruit development at application progressed towards maturity. There was no consistent effect of GA4+7 or GA3 on fruit mass. BA (up to 100 mg l⁻¹) or CPPU (up to 3 mg l⁻¹) had no significant effect on CM mass per unit surface area regardless of developmental stage. Higher concentrations of BA or CPPU decreased CM mass per unit surface area. There was no effect of BA or CPPU on fruit mass. Potential mechanisms and benefits of a gibberellin induced increase in CM deposition are discussed.