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**ENDOGENOUS HORMONE CONCENTRATIONS AND BUD BREAK RESPONSE TO EXOGENOUS BA IN SHOOTS OF APPLE TREES WITH TWO GROWTH HABITS GROWN ON THREE ROOTSTOCKS.**

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Scion of two apple (*Malus x domestica*) siblings were budded to three size-controlling rootstocks (M.9, M.7, and *Malus antanovka*) and planted in the field in 1997. The scion had two contrasting growth habits; one with narrow crotch angles, few proleptic branches, and an upright narrow canopy (UN) and the other with wide crotch angles, numerous branches, and a spreading round canopy (SR). Shoot tips were collected at time of bud break in April 2004 and analyzed for indole-3-acetic acid (IAA), cytokinins (CK), and abscisic acid (ABA). The UN growth habit had higher IAA, lower ABA, and equivalent CK as the SR growth habit. The synthetic cytokinin, 6-benzyl adenine (BA), was applied to 30 cm shoot explants of both growth habits in a greenhouse in March 2006. An 8.7 mM BA concentration stimulated bud break in both growth habits, compared with controls, and bud break was increased more in UN than SR growth habits. The results indicate that the auxin-to-cytokinin ratio may be a factor regulating bud break and development of growth habit of apple scions and that rootstock modified the hormone concentrations in shoot tips.