

Title Gibberellins do not act against abscisic acid in the regulation of bulb dormancy of *Allium wakegi* Araki

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Abstract

Abscisic acid (ABA) is involved in bulb dormancy of *Alliumwakegi* Araki. We examined the antagonistic role of gibberellins(GAs)against ABA in the regulation of this dormancy. The concentrations of ABA andGAs in the basal leaf sheaths or bulbs of *A. wakegi* cv.Kiharawase were investigated during growth in the field and postharveststorage.The concentration of ABA in the basal leaf sheaths began to increase about onemonth before they began to swell, reached a maximum shortly after bulbharvesting, and decreased during postharvest storage. The plants showed bulbdormancy accompanied with the change in ABA concentration. GA1,GA3, GA4, GA12, GA15, GA19, and GA20 were identified in the basal leaf sheaths of *A. wakegi* from Kovats retention indices (KRI) andfull-scan mass spectra by gas chromatography - mass spectrometry (GC-MS)analysis. The concentrations of all classes of GAs in the basal leaf sheathsestimated by the dwarf rice micro-drop assay increased transitorily shortlybefore they began to swell, and decreased rapidly during bulb development. Bulbdormancy had already been induced when the concentration of the GAs becamemaximum. All the GAs in the bulbs remained at a low level during postharveststorage, when bulbs were gradually released from dormancy. The concentrationsof GA1+3, GA4, GA15, and GA20 inthe bulbs increased after sprouting of the bulbs planted in moist vermiculite.Hence, the state of bulb dormancy is considered to be independent of the GAconcentrations of in the basal leaf sheaths or bulbs of *A.wakegi*.