

### Abstract

Onion (*Alliune cepa* L.) bulbs undergo a dormant period when sprouting and rooting are not induced, followed by a period of physiological change that prepares the bulb for subsequent growth. The internal sprout growth rate is a major determinant of onion, storage life. Bulb abscisic acid (ABA) concentration has been positively correlated with days to external sprouting in *A. wakegi*, a related species. Onion cultivars with long, medium and short storage lives, viz. Renate, Ailsa Craig and SS1, respectively, were stored in controlled atmosphere (CA) conditions (3.03 kPa, CO<sub>2</sub>, 5.05 kPa O<sub>2</sub> ; 2°C). Bulb ABA concentration declined during storage. The relationship between storage time (x) and ABA concentration (y) in all cultivars was described by the negative exponential function  $y=A+B^{-Kx}$ , where  $K=-\log(R)$ . The minimum ABA concentration (when  $x=\infty$ ) is given by A, and the ABA concentration when  $x=1$  is given by A+B. R is a measure of the steepness of the decline in ABA concentration. The greatest decrease in ABA concentration occurred during the first 80 days of storage across all cultivars. Although the pattern of decline was similar for long, medium and short storing onion bulbs, onion cv. SS1 bulbs had the lowest initial ABA concentration, suggesting that if the concentration of ABA in the bulbs of Short storing cultivars could be increased prior to storage, then storage life may be extended.