Title Influence of CA storage on quality traits of common onion (*Allium cepa* L.) and shallot (*Allium cepa* L. aggregatum group)

Author Marta Pudzianowska, Marek Gajewski, Katarzyna Cimaszewska, Patrycja Mastej, Felicja Roszkowska, Maria Tulik Warsaw

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Abstract

Shallot is cultivated widely in areas where common onion cannot be grown, however, it has minor economic importance compared to onion, and less investigations on shallot storage ability has been performed. Usually shallot was propagated by vegetative way, by dividing sets of daughter bulbs, but recently hybrid cultivars forming viable seeds were obtained by Dutch breeders and they arouse researchers' interest. In this study, a comparison in the changes of some quality parameters between onion and shallot during storage in different atmosphere compositions was performed. The popular onion cv. 'Hyduro F_1' and shallot 'Bonilla F_1' were investigated. Both of them have light brown outer scale and cream-coloured fleshy scales. The bulbs of both cultivars were stored in the normal atmosphere (NA) and controlled atmosphere (CA) of the following compositions: 5% CO_2 + 5% O_2, 5% CO_2 + 2% O_2, 2% CO_2 + 5% O_2, 2% CO_2 + 2% O_2. The temperature of storage was 0-1°C and 85% RH. Dry matter, total sugars and soluble solids of the bulbs were determined before and after 7-months storage period. Firmness and colour of fleshy scales were also determined, as well as ethylene and CO_2 production. Obtained results showed that storage conditions significantly affect investigated traits. The bulbs stored in NA conditions showed higher ethylene and CO_2 production than those stored under CA. The content of sugars and soluble solids in these bulbs were significantly higher as compared to bulbs stored under CA, while dry matter content and firmness was lower. Bulbs of 'Hyduro F_1' and 'Bonilla F_1' cvs. showed differences between the most of analyzed parameters, except bulbs finnness and a* (redness) parameter of scale colour.