Title Effects of different atmospheres on quality of stored Kuerle fragrant pear fruit

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Abstract

Introduction: Kuerle fragrant pear (*Pyrus serotina* Reld) is the most important pear crop grown in the northwestern provinces of China. Browning of pear peel and fruit decay are still considered to be major problems affecting its market value. This study was to investigate the effects of different O_2 and CO_2 concentrations on physiological properties, quality and storability of Kuerle fragrant pear fruits stored in modified atmosphere packaging (MAP), controlled atmospheres I (CA-I), and controlled atmosphere II (CA-II). **Materials and Methods:** Kuerle fragrant pear (*Pyrus serotina* Reld) were stored in modified atmosphere packaging (MAP) and controlled atmosphere I (CA I) of 2-4% O_2 plus 0.06-2% CO_2, and controlled atmosphere II (CA-II) of 4-6% O_2 plus 2-4% Cox at -1~0°C, to determine the effects of different O_2 and CO_2 concentrations on physiological properties, quality attributes and storability during storage periods of 180 days. **Results and Discussion:** The results indicated that CA I with 2-4% O_2 plus 0.06-2% CO_2 was more effective inhibiting the enzymatic activity of polyphenol oxidase (PPO), reducing phenol content, limiting ethanol content, preventing fruit peel browning, decreasing fruit decay and extending storage life of Kuerle fragrant pear than did other significantly affected by different atmosphere treatments. It was determined that the fruits stored in CA conditions for 180 days maintained good quality, especially in CA I with 2-4% O_2 plus 0.06-2% CO_2.