Abstract

Barberry fruits are dried in the sun traditionally to extend shelf life and maintain the fruit quality. However, modern society requires fresh products with better quality and free of microbial infection. The aim of this initial study was to evaluate the efficacy of blanching, 1-MCP and controlled atmosphere storage with high CO_2 on quality, storage life and microbial control of fresh fruits. Fruits were detached from branches and then dipped in a water bath (65 °C) for 40 s prior to dipping in distilled water (20 °C) for 40 s. Thereafter, they were placed into container and controlled atmosphere storage was created with injection of CO_2 gas into sealed container (2% CO_2/18% O_2), (10% CO_2/10% O_2) or exposed to 1-MCP at 1000 nL L^{-1} for 24 h at 20°C. Air (0.04% CO_2/21 % O_2) was used as control. After treatment, they were stored at 3 or 20 °C. Shelf life and quality parameters were assessed. Symptoms of fungi infection were observed in all treated fruit that were stored at 20 °C during the second week, while fruits that were stored at 3 C had better appearance and colour, without any sign of fungi growth even in the fourth week. Controlled atmosphere storage at high CO_2 concentration (10 %) had greater effect on microbial control of fruits in both storage temperatures. 1-MCP treatment delayed decay about one week compared to the control. Overall, modified atmosphere to a higher concentration of CO_2 (10%), blanching and storage at 3 °C increased postharvest life, improved the fruit quality and retarded fungi growth significantly as compared to the control fruits by 6 weeks.