

Control of brown heart in Huangguan pears with 1-methylcyclopropene microbubbles treatment

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Scientia Horticulturae 259: 108820. (2020)

Abstract

Samples were treated with 1-methylcyclopropene microbubbles (1-MCP MB) for 5, 15 and 30 min with concentration of $1.0 \mu\text{L L}^{-1}$. One group of pears was fumigated with the same concentration of gaseous 1-MCP at $20 \pm 2^\circ\text{C}$ for 24 h. The results showed application of 1-MCP MB and gaseous 1-MCP similarly controlled brown heart of pears compared with the control. 1-MCP MB treatment for 15 and 30 min reduced browning index, ethylene production, respiratory rate, hydrogen peroxide (H_2O_2) content, MDA content, PPO activity and improved firmness, soluble solid content, total phenols content, SOD activity, POD activity that was similar to that of gaseous 1-MCP treatment. In conclusion, our results indicated that 1-MCP MB treatment may be an efficient way to control brownheart in Huangguan pears.