Abstract

Browning of the cut surfaces of minimally processed fruit and vegetables, including on pre-cut slices of lettuce (*Lactuca sativa* L.), is a limiting quality factor during storage and marketing. 'Iceberg' lettuce slices were fumigated with nitric oxide (NO) gas at concentrations between 5 and 1000 $\mu l \, l^{-1}$ in air at 20°C for 1 to 4 h or dipped in an aqueous solution of the NO-donor compound, 2,2'-(hydroxynitrosohydrazino) -bis-ethanamine (diethylene triaminenitric oxide; DET ANO) at concentrations between 10 and 1000 mg l^{-1} for 15 sec to 60 min, followed by storage at O°C in air. The most effective treatments were fumigation with 500 $\mu l \, l^{-1}$ NO for 1 h, and dipping in 500 mg l^{-1} DET ANO for 5 min. The ability of NO to inhibit the development of browning of different types of lettuces was further investigated on the cut surfaces off our fresh-cut lettuce types (Green Oak, Green Coral, Baby Cos, and Butter) during storage at 5°e. The NO was applied to lettuce strips (i) by fumigation with NO gas for 2 h, (ii) by dipping in DET ANO solution dissolved in 0.01 M phosphate buffer pH 6.5, or (iii) by dipping in an aqueous solution of the NO-donor compound, sodium nitroprusside (SNP). Treatment with NO gas, DET ANO, or SNP inhibited the development of browning and extended the postharvest life of all four lettuce types. The optimum treatments were dipping in 500 mg l^{-1} DET ANO or SNP, which resulted in an approx. 60% increase in postharvest life over untreated lettuce slices.