

Preservative Potentials of Piper Guineense on Roma Tomato (*Solanum lycopersicum*) Fruit

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Abstract : Health risks associated with the use of synthetic chemicals to control post-harvest losses in fruit calls for use of natural biodegradable compounds. The potential of Piper guineense as postharvest preservative for Roma tomato (*Solanum lycopersicum* L.) was investigated. Freshly harvested red tomato (200 g) was dipped into five concentrations (1, 2, 3, 4 and 5% w/v) of P. guineense aqueous extract, while untreated fruits served as control. The samples were stored under refrigeration and analysed at 5-day interval for physico-chemical properties. P. guineense essential oil (EO) was characterised using GC-MS and its tomato preservative potential was evaluated. Percentage weight loss (PWL) in extract-treated tomato ranged from 0.0-0.68% compared to control (0.3-19.97%) during storage. Values obtained for firmness ranged from 8.23-16.88 N and 8.4 N in extract-treated and control. pH reduced from 5.4 to 4.5 and 3.7 in extract-treated and untreated samples, respectively. Highest value of Total Soluble Solid (1.8 °Brix) and maximum retention of Ascorbic acid (13.0 mg/100 g) were observed in 4% P. guineense-treated samples. Predominant P. guineense EO components were zingiberene (9.9%), linalool (10.7%), β -caryophyllene (12.6%), 1, 5-Heptadiene, 6-methyl-2-(4-methyl-3-cyclohexene-1-yl) (16.4%) and β -sesquiphellandrene (23.7%). Tomatoes treated with EO had lower PWL (5.2%) and higher firmness (14.2 N) than controls (15.3% and 11.9 N) respectively. The result indicates that P. guineense can be incorporated in to post harvest technology of Roma tomato fruit.

Keywords : aqueous extract, essential oil, piper guineense, Roma tomato, storage condition

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