

Sodium Nitroprusside-Shellac composite coating extended shelf life of sapota cv. Cricket Ball at ambient temperature

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ABSTRACT

Sapota, a promising fruit of India for its delicious taste, sugar rich, high energy and sweet pulp, packed with vitamins, minerals and antioxidants. This climacteric fruit has short shelf life at ambient condition. Therefore, in the present experiment one proven chemical; Sodium nitroprusside (SNP) as ethylene blocker and anti-senescent agent was used along with a natural, biodegradable resin name shellac (SC), commonly used as surface coating in fruits and vegetables for extension of shelf life; as sole or as composite coatings through nine different treatments viz. T₁: SNP 0.02mM, T₂: SNP 0.05mM, T₃: SC 2%, T₄: SC 5%, T₅: 0.02mM SNP+ SC 2%, T₆: 0.02mM SNP+ SC 5%, T₇: 0.05mM SNP+ SC 2%, T₈: 0.05mM SNP+ SC 5%, T₉: Control (Water dipped), laid out in complete randomized design with five replication under ambient condition (temperature 20-25⁰C, relative humidity 65-85%). Results manifested that sapota treated with 0.02mM SNP + 5% shellac coating had minimum weight loss (11.59%) with high fruit firmness (29.39N cm⁻²), TSS (18.86⁰Brix), total sugar (16.87%) and ascorbic acid content (10.32 mg 100g⁻¹) at 12 DAS. Besides, fruits under this treatment had minimum fruit decay (13.33%) resulted in highest shelf life (13.73 days). Thus, postharvest composite coating of SNP (0.02mM) and shellac (5%) can be a potential approach for shelf-life extension of sapota at ambient condition.

Keywords: Antioxidant, ascorbic acid, composite coating, sapota, shelf life, total phenol