

**POSTHARVEST STORAGE OF TWO STRAINS OF NAM DOK MAI MANGO FROM  
NORTHERN THAILAND UNDER DIFFERENT TEMPERATURES  
USING VARIOUS WRAPPING MATERIALS**

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**ABSTRACT**

The commercial ripe fruit of two strains of 'Nam Dok Mai' mango (*Mangifera indica* L.), Gold Sritong and Green T4 were stored at 13°C and 20 °C, with various wrapping materials to determine post harvest shelf life and suitable wrapping material. The rate of respiration, ethylene production, and weight loss were significantly decreased at 13 °C storage as compared with those at 20 °C. Regardless of strain and temperature, the lowest rate of respiration and weight loss were observed for the fruit wrapped with ethylene absorbing bag (EAB) and polyethylene plastic bag (PB) while the highest respiration rate and highest weight loss were found in the control fruits followed by the fruits of EABn (ethylene absorbing bag with needle perforated holes). Chilling injury symptoms were not observed in Nam Dok Mai mango, even when stored at 13 °C. The pH increased gradually particularly in control and EABn at 20 °C while in storage, Brix also increased similarly for both strains. Weight loss, skin firmness and pH were highly correlated with the total shelf life and were likewise affected by storage temperature and wrapping treatments. Significant differences were not observed among the treatments with respect to Brix % and total acid content of the fruit. Regardless of storage temperature and wrapping treatments, Green T4 showed the highest respiration rate and reached the ripening stage earlier than Gold Sritong. There were different respiratory and ethylene production patterns observed in the two strains of Thai mango in this experiment. The lower the storage temperature, the lower the rate of respiration and ethylene production, resulting in prolonged shelf life especially in the EAB and PB wrapped fruits. Shelf life and fruit firmness were better at 13 °C than at 20 °C in all the treatments. The infection of anthracnose disease was more rapid in Green T4 than Gold Sritong stored at 20 °C.

The present research indicated that wrapping with EAB and PB kept the Gold Sritong fruits in good condition up to 28 days at 13 °C as evidenced by the lowest weight loss, lowest respiration rate, firmer flesh and longer shelf life with good quality while Green T4 fruit could only be stored up to 15 days. Nam Dok Mai mango may be stored for 10 days without wrapping even at 20 °C regardless of strains. Therefore, mango fruit wrapping with EAB and PB may offer a practical means of prolonging shelf life up to 14 days longer at 13 °C and 2 days longer at 20 °C, depending on the strain or cultivar.

**Keywords:** Ethylene evolution, respiration rate, shelf life, storage temperature, wrapping material, ethylene absorbing bag