

Kiranun Mohpraman 2010: Factors Affecting Sodium Metabisulfite Residues in Young Coconuts. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Professor Jingtair Siriphanich, Ph.D. 66 pages.

Trimmed young coconuts turn an unattractive brown color and are highly susceptible to mold. The use of sodium metabisulfite (SMS) can remedy this problem. However, SMS residues in a coconut kernel may be harmful to the consumer. The effects of SMS concentrations and dipping durations were studied. Measurement of SMS in the water and pulp of young coconut samples showed that those dipped in high concentrations and longer duration of SMS solution had a higher chance to have SMS residue. It was also shown that the fruit dipped in 3% of concentration for ≤ 10 minutes contained no SMS residues. The effect of fruit maturity on SMS residues was also studied. It was found that fruit of 170 day after anthesis (DAA) had higher chance to have SMS residues than those of 180-185 DAA and 200-210 DAA, respectively. Results also showed that SMS penetrated the husk at the stem end (eye site) of the young coconut by 4 mm, deeper than that on the other sites. The anatomical study showed that SMS solution can penetrate the husk via air channels in the husk, the vascular tissue and through the soft eye. It is recommended from the study that young coconut should be 180-185 DAA or older, with minimal peeling, and be dipped in ≤ 3 percent of SMS solution for ≤ 5 minutes

Student's signature

Thesis Advisor's signature