

Vanilla cultivation and curing in Thailand

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Abstract

Vanilla (*Vanilla planifolia*) plantations in Thailand are mostly managed by the government sector located in the northern highlands and have made an economic impact since 2008. The biggest commercial area is at the Royal Project Foundation at 'Khunwang' station in Chiang Mai province with an intensive cultivation system under greenhouses. Average yield of green beans was initially 4.01 kg/tree, mainly categorized as 'B' grade being 13-15 cm length. Improper bean harvest maturities and long curing times during postharvest processing could be a key factor reducing flavor. Vanilla beans harvested at 7, 8, 9, 10 and 11 months after hand pollination were traditionally cured by 4 consecutive steps of killing, sweating, drying and conditioning, which took up to 4-6 months. Processed vanilla beans were sampled monthly to analyze volatiles during the conditioning step that normally takes 3-4 months. Glucovanillin (conjugating vanillin) progressively increased in fresh beans with time on the plant, but dramatically decreased in the cured beans. Fresh 11-month-old beans contained the highest amounts of glucovanillin (92.67 mg/g DW), resulting in the highest vanillin content in the cured intact beans (36.80 mg/g DW). Other aromatic compounds, including vanillic acid and 4-hydroxybenzaldehyde and 4-hydroxybenzoic acid, decreased during bean development and even more in the first month of the conditioning step. However, cured beans showed an obvious reduction of vanillin contents after conditioning for 3 months. Therefore, processing the conditioning step for a month was sufficient to get the best quality of cured vanilla beans in term of highest vanillin content.