Study of Calcium Spraying to Reduce Yellow Latex on Mangosteen Fruits (*Garcinia mangostana* L.)

Dorly[1], Febriyanti Barasa[2], Soekisman Tjitrosemito[1], Roedhy Poerwanto[3]*, Darda Efendi[3]

[1]Department of Biology, Faculty of Mathematics and Natural Sciences, Bogor Agricultural University, Darmaga Campus, Bogor 16680, Indonesia
[2] Alumnus of Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University, Darmaga Campus, Bogor 16680, Indonesia
[3] Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University, Darmaga Campus, Bogor 16680, Indonesia
*(*Corresponding author. Phone: +62-0251-326881, Fax:+62-0251-326881, E-mail: roedhy8@yahoo.co.id)*

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ABSTRACT

Yellow latex is the main problem in mangosteen agribusiness, because it is one factor lowering the fruit quality. Calcium is one of the important elements that strengthening cell wall which was binding with the pectin as a middle lamella component. The objectives of this research were to study the effect of fruit spraying using various kinds of calcium namely $CaCl_2$, $Ca(OH)_2$, and $Ca(NO_3)_24H_2O$ with the concentration of 22.5, 12.33, and 35.757 g/l subsequently and various dosages of $CaCl_2$ namely 0, 5, 15, 22.5 and 30 g/l on the incidence of yellow latex spots, physical and chemical properties on the mangosteen fruit. Calcium spraying in the first year was carried out 5 times at the 2nd, 4th, 6th, 8th, and 10th week after anthesis (WAA), while in the second year the spraying was conducted 7 times at the 2nd, 4th, 6th, 8th, 10th, 12th, and 14th WAA. Randomized block design was applied with three replications. Various calcium applications namely $CaCl_2$, $Ca(OH)_2$, and $Ca(NO_3)_24H_2O$ in the first year were ineffective to reduce yellow latex spot on the outer part of the fruit, but effectively reduced yellow latex spot in aril. $CaCl_2$ applications on various dosages in the second year were effective to reduce yellow latex spot either on the outer part of fruit or in the aril of the fruit, but insignificant among $CaCl_2$ dosage levels. Statistically, calcium content in the exocarp, mesocarp and endocarp of the fruit in the first year was significantly different. Calcium content in the exocarp, mesocarp and endocarp of the fruit in the first year on several calcium spraying treatments was higher than control treatment. In the second year, the calcium content of the pericarp on the 22.5g/l $CaCl_2$ was higher than control treatment but insignifanctly different with other $CaCl_2$ spraying treatments. Fruit spraying treatment in the first and second year were significantly different on the physical and chemical properties of mangosteen fruit except on the vitamin C content and total soluble solid and total titrated acid ratio.