

Suphot Chuakula 2007: Effect of Application Time of Ethephon on Pineapple

(*Ananas comosus* (L.) Merr. cv. pattavia) Fruit Quality and Sucrose Phosphate Synthase Activity.

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Ethylene, a naturally plant growth regulator, was used to accelerate pineapple fruit ripening. It has been cited that the concentration and application time of ethephon (ethylene releasing agents) affected fruit ripening. Using high concentration of ethephon decreased fruit weight, fruit core, fruit length, fruit width and TSS content, while TA content increased. At lower concentration, ethylene increased TSS content but it had no effect on TA content and TSS/TA ratio. For the ethephon application, the suitable time was not reported. The experiment was conducted to find out an appropriate time for ethephon application to hasten fruit ripening without the reduction of fruit quality and yield, and to monitor effects of ethephon on sucrose phosphate synthase activity and sugar contents in fruits. The field experiment was conducted using split plot in randomized complete block design. In the main plot, the plants were sprayed with ethephon (48% w/v) of 2 concentration levels, 0 and 250 mg/l respectively. Each plot was further divided into 4 subplots, for applying ethephon at different times after fruit induction; 14, 16, 18 and 20 weeks-after-forcing (WAF). The fruits were harvested every two weeks after applying ethephon, until the fruits reached their age of 22 WAF. Spraying ethephon at concentration of 250 mg/l increased TSS content, TSS/TA, sucrose content, sucrose phosphate synthase activity, total protein content and sucrose phosphate synthase/total protein content, while it had no effect on fruit weight, fruit length, fruit width, fruit core, TA content, pH, glucose content and fructose content. The application of ethephon at 16 and 18 WAF increased TSS, TSS/TA and sucrose content. The increase of sucrose content was positively correlated to the increase of TSS content and TSS/TA ratio, while sucrose phosphate synthase activity had negative correlation to the increase of sucrose. Using ethephon 250 mg/l at 18 WAF could shorten the fruit harvesting time about 7 days.

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