

The Effect of Pollination with Stored Pollen on the Fruit Quality of Atemoya (*Annona Squamosa* x *Annona Cherimola* hybrids)

Hsiao-Chun Chen¹

Abstract

Extending the pollen viability and maintaining the efficiency of hand-pollination are important in production of atemoya fruit. In this study, the pollen of sugar apple was stored in different forms (e.g. maternal tissue and anthers) and at different temperature (4°C and 10°C) to investigate the change of pollen viability and the effect on fruit set rate and fruit quality of atemoya. The in-vitro pollen germination test showed that pollen within maternal tissue form stored at 10°C was higher among all treatments, while the pollen collected from anthers was able to prolong the pollen viability effectively when stored at 4°C. Fruit set rate was less affected by pollen viability. When pollen within maternal tissue form was stored at 10°C for seven days, the in-vitro germination rate was 27.3%, which was less than fresh pollen (57.3%), but the fruit set rate had no significant difference. The in-vitro germination rate of pollen collected from anthers form at 4°C was only 10.7% when it was stored for three days, but the fruit set rate was 98.1%. Fruit quality was significantly affected by the freshness of pollen. The increase of the pollen storage days significantly caused the reduction of fruit weight, and the deviation of fruit symmetry index. The fruit weight of pollen within maternal tissue form stored at 10°C decreased significantly from the 3rd storage day, and the fruit weight of pollen collected from anthers stored at 4°C for one day was significant lower than zero day storage. The decrease of fruit quality is related to the decrease of seed number and single seed weight when stored pollen was used in the early storage period. However, the late storage period may cause the decrease of flesh rate. Thus, it is recommend that either pollen within maternal tissue form stored at 10°C for three days, or the pollen collected from anther stored at 4°C for one day are used to ensure the fruit set rate as well as fruit quality .

Keyword : Sugar apple, Pollen within maternal tissue, Fruit set rate, Fruit composition, Fruit symmetry index

¹ Assistant Researcher of Taitung DARES, COA.