

**Title** Postharvest life of breaker and turning tomatoes subjected to transient modified atmosphere

**Authors** T. Chanthasombath, K. Sanatem, C. Phomachan, A. Acedo Jr., K. Weinberger

**Citation** ISHS Acta Horticulturae 804:459-464. 2008.

**Keywords** *Lycopersicon esculentum* L.; fruit ripening; harvest maturity; genotypic trait; polymeric films; postharvest technology

### **Abstract**

Modified atmosphere packaging (MAP) was tried as a possible treatment during prolonged period of transport and holding to slow down ripening and quality loss of tomato harvested when ripening has set in but still firm. Fruits at breaker and turning stage of the two elite AVRDC varieties, TLCV15 and CLV1462A, were sealed in 25 micron-thick high-density polyethylene (HDPE) bag with or without perforations (2 perforations per kg fruits). After 10 days at ambient, the fruits were taken out from the bag and held in the open. The non-perforated HDPE film delayed fruit ripening regardless of variety and harvest maturity as compared to that of fruits held continuously in the open (control). With perforated HDPE, ripening retardation was not appreciable. However, both MAP treatments remarkably decreased weight loss and again this effect did not vary much with variety and harvest maturity. After the 10-day MAP holding and subsequent storage in the open, weight loss increased at a faster rate after a lag period of about 2-5 days. Fruit decay developed earlier in CLN1462A than in TLCV15 fruits at both ripeness stages. MAP effects on fruit decay differed with variety and harvest maturity. In CLN1462A, breaker fruits held in non-perforated HDPE decayed slower compared with those in the perforated HDPE. For fruits at turning stage HDPE with and without perforation did not delay decay development. In TLCV15, decay sharply increased towards the later period of storage in both breaker and turning fruits and such increase was generally higher in non-perforated HDPE than in perforated one. MAP had no clear effect on the physicochemical changes of the fruits of both varieties and harvest maturities. In general, firmness and acidity decreased while soluble solids either increased or remained almost similar to that of the initial level. Furthermore, MAP did not adversely affect the sensory quality of the fruits at red-ripe stage. In certain cases fruits previously held in MAP were rated higher in some sensory quality attributes than that of the control.