

A-4

POSTHARVEST APPLICATION OF 1-MCP TO IMPROVE THE QUALITY OF VARIOUS AVOCADO CULTIVARS

E. Pesis, O. Feygenberg, R. Ben-Arie, V. Hershkovitz, M. Ackerman and D. Prusky

Department of Postharvest Science of Fresh Produce. A.R.O. The Volcani Center. P.O. Box 6. Bet Dagan 50250. Israel. Email: ephasis@agri.gov.il

1-methylcyclopropene (1-MCP) inhibited the ripening of avocado fruit cvs. Ettinger, Fuerte, Pinkerton, Hass and Arad. This occurred by delaying the climacteric peak of CO₂ and ethylene production. In cultivars producing around 60-120 ml/kg.h of ethylene at the climacteric peak, such as Hass and Pinkerton the concentration of 1-MCP to prevent ripening was 50-150 ppb. However, in cultivars that produce 20-35 ml/kg.h of ethylene during the climacteric peak, such as Ettinger and Fuerte, 300ppb of 1-MCP was required to get the same effect. The delay in ripening was correlated with the reduction in fruit softening and reduced electrical conductivity, which serves as a good index for membrane permeability. 1-MCP prevented chilling injury symptoms as mesocarp discoloration, decay development and polyphenol oxidase (PPO) activity, while ethylene treatment induced PPO activity and flesh discoloration during cold storage. Peel degreening during cold storage as a result of chlorophyll breakdown was also inhibited by 1-MCP especially in Ettinger. In a new Israeli cultivar named Arad, 300ppb 1-MCP prior cold storage inhibited pre-germination processes which lead to mesocarp discoloration.