

Title Effect of wounding on cell wall hydrolase activity in fruit
Author Thanh Tu Chung and Tucker, G. A.
Citation Australian postharvest horticulture conference, Brisbane, Australia, 1-3 October, 2003; 285-286
Keywords tomato; wounding; ripening

Abstract

The cell wall hydrolases polygalacturonase (PG, EC: EC: 3.2.1.15), pectinesterase (PE, EC: 3.1.1.11) and beta -galactosidase (beta -gal, EC: 3.2.1.23) play a crucial role in the firmness and appearance of fruits. Previous work has been focused in the activity of these enzymes during fruit ripening. However, limited research has been concerned with their activities in wounded tissues, where they may affect the aesthetic quality and shelf life of fresh-cut fruits. This research is being carried out to evaluate the response of PG, PE, and beta -gal to wounding in fruits. The expression of PG, beta -gal and PE genes all increased within the first 6 h after wounding of tomato fruits. However, in most cases, these returned to pre-wounding levels after 24 h. The activities of these three enzymes were also examined in intact (control) and wounded tomato fruit tissues 24 and 48 h from wounding. In early breaker fruits, the increase in activities of PG and beta -gal associated with normal ripening were both retarded resulting in wounded fruits having reduced activities compared to the controls; whilst PE activity actually declined 24 h after wounding. In ripe tomato fruits, PG and PE activities both decreased 48 h after wounding, but beta -gal was unaffected. Whether this decline in hydrolase activity in response to wounding is found in other fruits is being investigated.