Title	Cell wall compositional differences between mealy and non-mealy 'Forelle' pear during ripening
Author	Elke M. Crouch and Marius Huysamer
Citation	Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey. 256 pages.
Keyword	Pear; mealiness; cell wall

Abstract

Mealiness of 'Forelle' pear during ripening is a problem for the South African fruit export industry. The aim of this work was to investigate differences in cell wall polysaccharides between mealy and non-mealy 'Forelle' pears. Fruit were harvested at optimum maturity (6.4 kg), cold stored for 3 to 21 weeks at -0.5°C, and ripened at 15°C for 0, 4, 7 and 11 days during which samples were taken for cell wall analysis. Only dates where mealiness occurred are reported on. Cell walls (CW) were extracted and de-starched with 90% DMSO and total neutral sugar (NS) and uronic acid (UA) contents measured. Samples were sequentially extracted with water, CDTA, Na_2CO_3, 1M KOH and 4M KOH to determine differences in binding strength of the cell wall constituents between mealy and non-mealy tissues. Total NS and UA content were measured for each of these fractions; after dialysis. The UA content of the water soluble fraction was lower in mealy tissues after 6 weeks of cold storage plus 11 days: of ripening, and 9 weeks of cold storage plus 7 and 11 days of ripening. In the CDTA soluble fraction, UA content was also, lower in mealy tissues of fruit cofd stored for 6 weeks and ripened for 11 days. The total NS content after sequential extraction did not differ for mealy and non-mealy tissues. NS were more easily extracted in the water, 1M KOH and 4M KOH fractions after prolonged storage and ripening. Mealy and non-mealy cell walls of 'Forelle' showed compositional differences. The lower water soluble pectin and CDTA soluble pectin without a substantial increase in the Na_2CO_3 soluble pectin for mealy tissues; suggests a more broken down cell wall in mealy tissues. The significance of these findings will be further discussed.