

Effects of preharvest spray with maleic hydrazide, ethephon and paclobutrazol on yam tuber dormancy

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Abstract

The pronounced tuber dormancy of yam of about 2-4 months determines the potential storage life of the tubers and the availability of planting materials for the next cropping. This study determined the effects of maleic hydrazide (MH, 3.3 kg active ingredient/hectare), 500 ppm ethephon using the commercial formulation Ethrel, and 500 ppm paclobutrazol (PB) which were sprayed to runoff one month before harvest on tuber sprouting of purple yam cultivar 'Kinampay' during postharvest storage at ambient (23-31°C, 65-92% RH). Unsprayed plants served as control. MH and PB did not affect tuber yield while ethephon reduced yield due to production of small-sized tubers. Tuber sprouting started after 6 weeks of storage. MH delayed tuber sprouting by at least 2 weeks and slowed growth of sprouts. Ethephon and PB had no marked effect. Respiration rate increased during sprout formation and was lower in MH treatment while ethylene production did not correlate with tuber sprouting. Losses in weight, water and dry matter increased with storage but at a lower magnitude in MH-treated tubers. Changes in starch and sugar contents were inconsistent but α -amylase activity was lowest in MH-treated tubers supporting the delay in sprouting.