M.J. Hutchinson, D.K. Chebet and V.E. Emongor. 2010. Effect of Accel, Sucrose and Silver thiosulphate on substrate utilization in cut Tuberose (*Polianthes tuberosa* L.) flowers. J. Agric Science and Technology. ***Accepted***

## ABSTRACT

This study was undertaken to investigate the effect of Accel™, sucrose and silver thiosulphate (STS) on the dry weight, accumulation of sucrose and reducing sugars in cut tuberose (*Polianthes tuberosa* L) petals at various positions along the spike. Cut stems of Tuberose were held in optimum treatments that prolonged their vase life (Hutchinson *et al.*, 2003): continuous holding in 25 mg/L BA equivalent of Accel; pulsing in 20% sucrose for 24 hrs and subsequently holding in either deionized water (DIW) or in 25 mg/L BA; pulsing in 2 mM STS for 1 hr and subsequent holding in DIW. The middle and bottom florets of cut flowers held in DIW were heavier than the top florets. Pulsing tuberose cut flowers in sucrose or in STS improved the dry weights of the middle and bottom florets in the 1st 3 days but up to 6 days of top florets. Florets of cut flowers pulsed in sucrose and subsequently held in Accel were heavier than those subsequently held in DIW or those held continuously in Accel. Sucrose, STS and Accel increased floret opening but had varied influence on the accumulation of sucrose and reducing sugars in petals of florets along the spike. Cut tuberose stems pulsed in sucrose and subsequently held in either DIW or 25 mg/L BA equivalent of Accel accumulated the largest amounts of sucrose and reducing sugars. Pulsing cut tuberose flowers in 10% sucrose and subsequently holding them in Accel or DIW or pulsing in STS, while having no influence on sucrose levels in bottom florets, significantly increased levels in top florets for the 1st 3 days before a sharp decline in petals pulsed in sucrose. The main difference was that while most of the sucrose accumulated in the middle florets, reducing sugars was concentrated on the bottom florets along the spike. Unexpectedly, pulsing stems in STS or holding them in Accel had no significant influence on levels of sucrose or reducing sugars within the 9 days of testing even though most florets had opened by this time. The results of the present study suggest that while sucrose had a direct influence on accumulating of sucrose and reducing sugars in florets, Accel and STS improved vase life and floret opening in cut tuberose stems either indirectly through substrate mobilization and increased metabolism or may have played another different role other than substrate mobilization.