FRUIT MATURITY STAGE ON SEED YIELD AND SEED QUALITY OF TOMATO (*Solanum lycopersicum* L.)

N.S. Karunarathne[1], H. Hemal Fonseka[2], D.A.U.D. Devasinghe[1] and K.M.R.D. Abhyapala[1]

[1]*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura*

[2]*Hayleys Quality Seeds Company, Boralanda*

Maturity stage of fruits at harvesting is an important factor that can influence the seed yield and seed quality of tomato. Quality seeds of tomato can facilitate uniform emergence and production of vigorous seedlings during field establishments. Tomato seed producers harvest fruits at different maturity stages for seed extraction and that has soused seed quality related problems. Therefore, this study was conducted to evaluate the effect of fruit maturity stages of tomato on seed yield and seed quality. This study was conducted at the Hayleys Quality Seeds Company, Boralandafrom March to August, 2017. Five tomato varieties *viz*; HAYTO 001, HAYTO 008, HAYTO 011, HAYTO 014 and HAYTO 015 were arranged in Complete Randomized Design in a protected house. Tomato fruits were harvested at three maturity stages based on skin colour *i.e.* colour break stage (CB), initial red colour (IR) and complete red colour (CR) using RHS colour chart. Physical and physiological qualities of seeds and seedling quality were assessed using appropriate observations. There was no interaction ($p>0.05$) between variety and fruit maturity stages for none of the parameters recorded. Although thousand seed weight (3.18 g±0.05) was significantly high ($p<0.05$) in variety HAYTO 015, it was not differed significantly among maturity stages. Thousand seed weight at CB, IR and CR stages were 2.49 g±0.14, 2.43 g±0.14 and 2.59 g±0.13, respectively. Percentage of seed germination was differed greatly among varieties and maturity stages. Among varieties it ranged from 91.1% (HAYTO 008) to 42.2% (HAYTO 011) whereas among maturity stages it showed 19% for CB, 40.8% for IR and 68.4% for CR. Root length (3.31 cm ±0.08) was significantly high in variety HAYTO 008. Hypocotyl lengths and seedling root lengths at different maturity stages were not significantly different. The values of hypocotyle lengths were 6.69 cm ±0.42, 6.60 cm ±0.06 and 6.62 cm ±0.06 of CB, IR and CR, respectively whereas seedling root lengths were 3.06 cm ±0.22, 2.94 cm ±0.11 and 2.95 cm ±0.09 of the same stages, respectively. In conclusion, harvesting fruits for seed extraction at complete red colour stage is suitable to maintain better seed quality parameters for the tested tomato varieties.

Keywords: Maturity stage, Seed quality, Seed yield, Tomato varieties