# Classification of Sri Lankan tomato varieties based on image analysis

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A non-destructive image analysis method for classification of tomato (*Lycopersicon esculentum*) varieties (Sri Lankan hybrids) has been developed. Maheshi, Rajitha , T245 and Thilina varieties grown in Atipola, Sri Lanka during Yala season, 2009 were used in the study. Multispectral imaging system with white LEDs as light source was used for data acquisition. Two plane polarizers have been employed in order to acquire multiple scattered light coming from the interior of the sample. The acquired data were corrected for intensity variations occurred due to the 3-dimensional nature of objects by transferring them to 2-dimensional images. The 2- dimensional data were subsequently transformed into a 1-dimentional array in order for efficient computer processing. The acquired data were compressed using singular value decomposition and trained them with a linear model with an offset. After successful training of data, the system was found to be capable of discriminating Maheshi, Rajitha and T245 / Thilina varieties. However, the system was unable to discriminate T245 and Thilina varieties individually. Discrimination capability of the system was tend to deteriorate with the shelf life.