

**EFFECT OF DIFFERENT POTTING MIXTURES ON
CROP GROWTH AND YIELD OF LANKA SOUR
TOMATO (*Solanum lycopersicum* L.)**

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ABSTRACT

Tomato is one of the widely cultivated vegetable crops in the world. Lanka sour tomato is a traditional tomato variety in Sri Lanka. Various potting media use for tomato cultivation with a combination of organic and inorganic substrates. There are significant issues with inorganic substrates. There are many waste products available in Sri Lanka which has the potential to use as organic potting substrates. Therefore, this study was performed to identify the most effective potting mixture for Lanka sour tomato. Five different potting media were used including (T1) Topsoil+ compost (control), (T2) Topsoil + compost + coir dust, (T3) Topsoil + compost + Half burn paddy husk, (T4) Topsoil + compost + sawdust, (T5) Topsoil +compost + Tea waste. The experiment was conducted at Uva Wellassa University under controlled environment conditions. The experiment was laid out in a Completely Randomized Design with five replicates. Relevant treatments were mixed with a 1.1.1 ratio (w/w) respectively. Growth parameters such as number of leaves, number of branches, plant height, stem girth, chlorophyll content, root length, and root weight were measured. Number of flowers, number of fruits, fruit yield, fruit Brix and fruit pH were recorded as yield parameters. The highest number of leaves (523.40 ± 117.38), stem girth ($3.38 \pm 0.04\text{cm}$), plant height ($70.24 \pm 5.42\text{cm}$), and chlorophyll content (64.09 ± 11.09) were recorded in the T3 potting mixture. Furthermore, the number of fruits (14.80 ± 5.02), fruit yield ($1007.2 \pm 252\text{g}$), fruit Brix (4.9 ± 0.12), and fruit pH (5.37 ± 0.12) were also higher in T3 than other treatments. T4 showed the highest root weight ($17.60 \pm 4.56\text{g}$) and root length ($33.50 \pm 8.77\text{cm}$). T5 had the highest electrical conductivity ($395 \mu\text{S cm}^{-1}$). T4 had the highest water holding capacity as a percentage of 67.99%. Half burn paddy husk incorporated potting mixture gave highest growth performances and yield of Lanka sour tomato. Paddy husk is an agricultural waste that has great potential to utilize as an organic substrate for tomato cultivation.

Keywords: Lanka sour tomato, Potting mixtures, Growth, Yield