Exploring the Potential of Coconut Water as a Liquid Fertilizer for Greenhouse Tomatoes (*Solanum lycopersicum* L.)

S.R.W.M.C.J.K. Ranawana*, W.A.G.I.S. Weerakkodi, K.R.K.S. Gunathilaka and P.E. Kaliyadasa

Department of Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka
**Corresponding Author E-mail: chandijeewani@yahoo.com, TP: +94718605811*

Coconut water (CW) is one of the world's most versatile natural products rich in essential minerals and growth hormones. Despite its potentials, large quantities of coconut water remain unutilized at the industry and household levels as waste in the Sri Lankan context. Therefore, the present study investigates the potential of coconut water as a liquid fertilizer for greenhouse tomato production. For this purpose, different combinations of coconut water (CW) and Albert's solution (AS) were evaluated under controlled environment conditions using tomato *cv* "*Thilina*" in grow bag culture. The experiment was laid out in a Complete Randomized Design with five treatments replicated thrice, *viz*., T1 (100% CW), T2 (100% AS + CW spray), T3 (75% CW + 25% AS), T4 (50% CW + 50% AS) and T5 (100% AS at recommended dosage) as the control. Growth and yield parameters were measured at 45 and 60 days after transplanting (DAT). T4 and T5 (control) treated plants recorded statistically similar values, which were significantly higher ($p<0.05$) than the others for plant height (98.7±4.7; 95.3±2.4 cm), number of flower clusters/plant (16.3±1.8;16±1.2) and number of flowers/plant (78±8.7;76.7±2.2) at 45 DAT, respectively. A similar pattern was observed at 60 DAT for plant height (139.3±8.1;138.7±0.7 cm), number of flower clusters/plant (23±1.5;21.7±1.5), number of fruits/plant (76.3±6.4;77.7±4.3), average fruit weight (87.7±0.6;81.7±0.4 g) and total yield/plant (1755.1±8.9;1753.4±14.1 g) in T4 and T5 respectively. There was a significant difference ($p<0.05$) in pH and TSS (°Brix) among treatments. pH value ranged from 5.12 in T5 to 5.33 in T3. The highest TSS (°Brix) value (5.67±0.33) was recorded by T4. Plants treated with 100% CW (T1) showed a 13% total yield reduction per plant compared to the control, possibly due to low nitrogen content. In conclusion, coconut water has a potential to be developed as a liquid fertilizer for greenhouse tomatoes partially replacing the requirement of Albert's solution (AS) which is more cost effective. Further studies are recommended to evaluate the possibility of using 100% coconut water with supplementary organic sources of nitrogen.

***Keywords*:** Albert's solution; Coconut water; Growth and yield; Tomato