

## Effect of Fertilizer Application with Fish Tonic on the Growth and Yield Performance of Tomato (*Solanum lycopersicon*)

K. Jegatheeswaran<sup>1\*</sup>, M. Anusiya<sup>1</sup> and K. Jeyavanan<sup>2</sup>

<sup>1</sup>Department of Biosystems Technology, Faculty of Technology, University of Jaffna, Sri Lanka

<sup>2</sup> Department of Agronomy, Faculty of Agriculture, University of Jaffna, Sri Lanka

\*anusiyam@univ.jfn.ac.lk

Fish tonic is a product of fermented fish wastage, and can be used as an organic fertilizer, to enhance the growth and yield of crops. Moreover, fish tonic can serve as a solution for eco-friendly waste management. Hence, a pot experiment was conducted at the District Agriculture Training Center, Thirunelveli, Jaffna, during November 2020 to March 2021 to evaluate the effect of fertilizer application with fish tonic on the growth and yield performance of tomato. Padma F1 Hybrid variety of tomato was selected for this experiment as the test crop. Five treatments were designed by using different concentration of fish tonic as soil application with different percentages of recommended urea fertilizer namely, T1 – 100% fish tonic, T2 - 0% fish tonic + 100% urea, T3 – 75% fish tonic + 25% urea, T4 – 50 % urea + 50% fish tonic and T5- control. These treatments were laid out in a completely randomized design with three replicates. Nutrient contents (NPK) of fish tonic were analyzed. Several vegetative and reproductive growth parameters were measured. The data were analyzed in ANOVA test using SAS software. Nitrogen, phosphorus and potassium content of the fish tonic were 4077 ppm, 567 ppm and 521 ppm, respectively. According to the results, plants treated with fish tonic performed better than other treatments. The results revealed that applying 100% of fish tonic (T1) was significantly ( $p < 0.05$ ) showed better performance in the plant height (128.3 cm), number of leaves per plant (94), leaf width (10.2 cm), leaf length (5.3 cm), number of flowers per plant (25), number of fruits per plant (19), fruit weight (49.5 g/fruit), fruit circumference (13.3 cm) and yield (794 g/plant) than other treatments. Therefore, this study revealed that tomato plants were well performed under 100% fish tonic as soil application. Further studies can be conducted to evaluate the nutrient uptake and nutrient use efficiencies as affected by the application of fish tonic in tomato.

**Keywords:** Fish tonic, Organic fertilizer, Soil application, Tomato, Yield