Tomato (Solanum esculentum L.) growth under compost application. The case of climate-smart agriculture in Iraq

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Abstract

Tomato is one of the most important crops in Basra, Iraq. However, tomato production is affected by the impact of climate change e.g., salinity increase and intense drought. Therefore, to ensure sustainable high production and to adapt to the impact of climate change, climate-smart agriculture is introduced. A pot experiment under greenhouse conditions was conducted at winter season in 2021 at the agricultural research station College of agriculture - Basrah university (Garmat Ali campus).This study aimed to test the effect of applying 3 different organic residuals (Palm trunk, Corn molasses and Plants residue(PR),Wheat straw(As compost on growth of tomato plant (Solanum esculentiumL.), (Fotoon) properties. The organic residuals were composted. The (PR)(PR) were collected and then cut into small pieces of a size of 3cm, then each of these residues was placed separately in concrete basins dimensions 3*6m (length*width) 1.5 mm high, lined with polyethylene to prevent the effect of salt, then it was moistened until saturation and then covered with plastic for the purpose of Encouraging reactions to speed up the decomposition process, and the waste was stirred every week for the purpose of moisture homogeneity)for 2 months and mixed with three soil types at different proportions (silty clay, clay loam and sandy loam). At the pot level tomato plant experiment in complete randomized block was installed with twelve treatments and 3 replicates each. The results showed that palm trunk residues gave a significant effect on plant height growth (39.88 cm) which standard deviation was (18.64), leaf number (9.41 leaf plant-1) as standard deviation was recorded 0.69, steam diameter (0.14cm) with the standard deviation (0.0006), fresh shoot weight (32.20 gm pot-1) its standard