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# Evaluation of Vine Stem Waste as a Filler Material for High Density Polyethylene

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**Abstract :** Cheap and abundant waste materials have been investigated as filler materials in thermoplastic polymers instead of wood- based materials because of deforestation. Vine stem, as an agricultural waste, was used as a filler material for a thermoplastic polymer, high-density polyethylene (HDPE) in this study. Agricultural waste of vine stem was collected from Manisa region, Turkey. Vine stem at different rations was used to reinforce HDPE. The effect of vine stem loading on tensile strength and Young's modulus of composites were obtained. It was clearly observed that tensile strength and Young's modulus of HDPE was increased by vine stem loading. Thermal stabilities of composites were obtained by using thermogravimetric analysis. Water absorption behavior of HDPE was improved by loading vine stem into HDPE. The crystallinity index values of neat HDPE and vine stem loaded HDPE composites were investigated byX-ray diffraction analysis. From this study, it was inferred that vine stem, as an agricultural waste, can be used as a filler material for HDPE.

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