3D PRINTING FOR ANTIMICROBIAL TEXTILES USING PLANT WASTE

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Abstract

The study focuses on the potential for using plant waste with antimicrobial properties for the fabrication of 3D printing materials that can be used in textiles. The plant waste considered in this study is that which is mainly disposed of from the commonly consumed foods by students at Moi University in Kenya. Most of the waste, namely, potato peels, avocado seeds, banana peels and groundnut shells contain natural polymers which can be turned into plastic products and also filaments for 3D printing. The same waste products contain phytochemicals that enable them to have antimicrobial properties. So far tests have been done to determine the antimicrobial potential of the potato peel waste through phytochemical screening as well as antimicrobial tests. The results have shown that the potato peels have antimicrobial properties and could potentially be used in the production of 3D printing materials with the same properties. More tests are still to be conducted on the avocado seeds, the banana peels and the groundnut seeds.