Preparation of legnocellulosic nanofibrils from horticultural waste: a step towards "waste to wealth"

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ABSTRACT

India is one of the largest producers of horticultural cultivation in the world. Nearly, 35-40% of total horticultural production get wasted due to inadequate storage infrastructure and transportation facilities. Furthermore, the horticultural biomass residue such as fruit processing industries wastes are produced in large quantity. These horticultural biomass residues not only cause various environmental nuisance but hazardous to the health too. These solid wastes however are rich in lignocellulosic components (cellulose, hemicellulose, lignin and pectin), soluble sugars and essential oils etc. Therefore, these components can be valorized to produce eco- friendly biomaterials to protect the green environment. Cellulose is the most abundant natural biopolymer and has shown a lot of potential in research for versatile properties and can be engineered for several biopolymer composite preparation. The surface modified cellulose derivatives may compete with the conventional ones for various biomedical as well as commercial applications. Thus, horticultural waste valorization concept of "waste to wealth" may go for cyclic economy by producing natural biopolymer-based products and will also contribute to clean green environment.

Keywords: Lignocellulosic Biomass, Horticultural Residue, Cyclic Economy, Surface Modification, Biopolymer.

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