

Copper nanoparticles from agricultural wastes: a case study on blueberry local processing.

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Recently, the synthesis of metal nanoparticles using biological sources has been widely studied and it is by now recognized as an efficient and green method. Here we propose a further step toward more ecofriendly and sustainable processes, exploring the potential use of by-products from blueberry processing for synthesizing copper nanoparticles (CuNPs). Blueberry extracts from different *Vaccinium* species were used to achieve copper reduction and nanoparticle stabilization. The obtained CuNPs were characterized by physic-chemical methods and tested for antimicrobial activity against *Escherichia coli* and *Staphylococcus aureus*. Promisingly, CuNPs from blueberry extracts showed great antibacterial effect, producing a half-reduction of Minimal Inhibitory Concentration (MIC) values in both species. These results suggest a possible synergistic effect between copper and the berry extract antimicrobial properties.