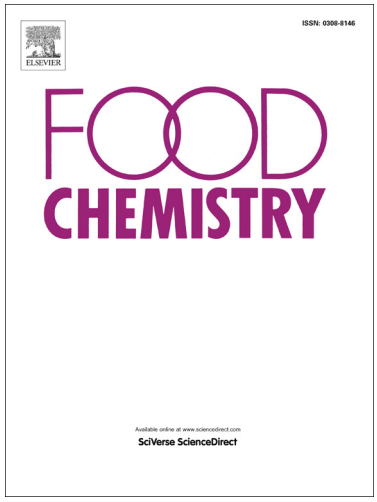

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Simplified recovery of enzymes and nutrients in sweet potato wastewater and preparing health black tea and theaflavins with scrap tea

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ABSTRACT: The industry discards generous organic wastewater in sweet potato starch factory and scrap tea in tea production. A simplified procedure to recover all biochemicals from the wastewater of sweet potato starch factory and use them to make health black tea and theaflavins from scrap green tea was developed. The sweet potato wastewater was sequentially treated by isoelectric precipitation, ultrafiltration and nanofiltration to recover polyphenol oxidase (PPO), β-amylase, and small molecular fractions, respectively. The PPO fraction can effectively transform green tea extracts into black tea with high content of theaflavins through the optimized fed-batch feeding fermentation. The PPO transformed black tea with sporamins can be used to make health black tea, or make theaflavins by fractionation with ethyl acetate. This work provides a resource- and environment-friendly approach for economically utilizing the sweet potato wastewater and the scrap tea, and making biochemical, nutrient and health products.