Abstract

In this study, cellulose was extracted from sugarcane bagasse and ricestarw through five step treatment (cutting and grinding, washing, alkaline treatment, bleaching and drying) and then it was applied to produce microcrystalline cellulose using acid hydrolysis process. Sugarcane bagasse is a rich source of cellulose (32–45%), hemicellulose (20–32%) and lignin (17–32%), 1.0–9.0% ash and some extractives. Though cellulosic and hemicellulosic fractions in bagasse makes it a potential raw substrate for the production of value-added products at large scale. Microcrystalline cellulose (MCC) is among the most commonly used cellulose derivatives in the food industry. Microcrystalline cellulose (MCC) is a popular pharmaceutical excipient, used as a filler or binder in directly compressible tablets. Moreover, the derived MCC from bagasse and ricestarw were comparable to commercially available MCC based on different physicochemical parameters associated with flow property such as bulk density, pH and conductivity, tapped density, Hausner's ratio, Carr's index, angle of repose, and moisture content. Yield of MCC formed by cotton (ricestarw) is 98.5% of 1.5M HCl and 95% yield of 1M acid hydrolyzed sample formed by cellulose (bagasse). The extracted cellulose contained different functional groups which was confirmed by Fourier Transformed Infrared Spectroscopy (FT-IR).