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Preliminary Fourier-Transform Infrared Spectroscopy Analysis of Cotton Trash

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Ongoing research efforts at the United States Department of Agriculture (USDA) consist of developing methods for the identification of cotton trash. Botanical cotton trash (eg. leaf, stem, hull, bark) has been reported to be problematic in the processing efficiency and quality of cotton throughout ginning and textile processing. Fourier transform infrared (FTIR) spectroscopic methods are being utilized to develop a database for the classification of different trash found in cotton. This manuscript reports the effects of cotton trash as it is subjected to physical modifications (size reduction and thermal treatment) that may occur during ginning and textile processing on the FTIR spectroscopic properties. Results indicate that both thermal treatment and variations in trash particle size significantly affect the resultant FTIR spectra, which necessitates an expansion of the database to include these effects.

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