(Note) Possible NIRS Screening Tool for Entomological Sugars on Raw Cotton

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Entomological sugars from insect contamination of raw cotton (*Gossypium hirsutum* L.) lint not only can affect quality, but these sticky sugars and other carbohydrates also collect on processing machinery, inhibiting its speed and efficiency. In the search for a nondestructive, reliable, and quick test to identify potentially sticky cottons that could be used as a screening tool in a fiber classing system, a single non-insect contaminated cotton was treated with different concentrations of the two honeydew-specific sugars trehalulose and melezitose. High performance liquid chromatography (HPLC) analyses identified and quantified individual carbohydrate concentrations, then near infrared (NIR) spectra scans characterized untreated and treated cottons, that subsequently were conditioned to four fiber moisture levels, ranging from 46 to 93 g kg^{-1} (4.6–9.3%). Statistical analysis of data from chemical analysis and NIR spectra resulted in the selection of the fiber moisture content and 12 wavelengths as independent variables in multiple regression equations to predict concentrations of entomological sugars on these cottons. Calculations for linear correlation coefficients of predictability were able to classify cotton samples with different entomological sugar contents with 89.2% success ratio.