CHARACTERIZATION OF BIOMASS FROM BAGASSE AND STRAW OF SUGAR CANE - WP2

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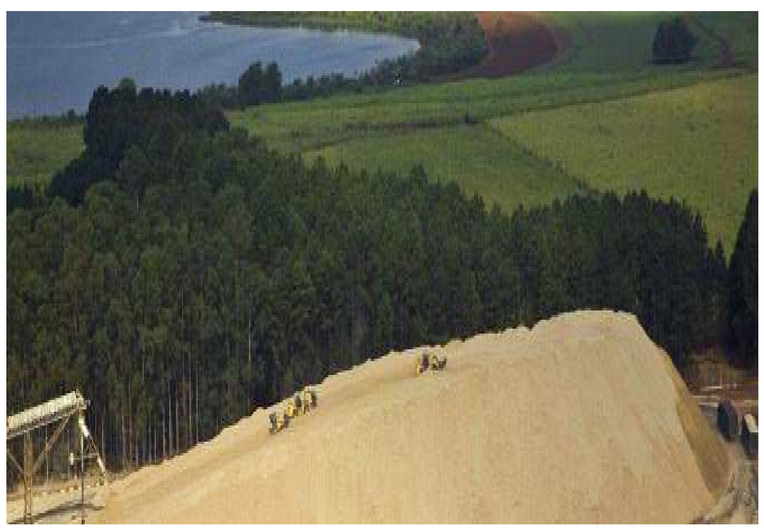
BRASIL SUGAR CANE SECTOR SEASON 2011/2012

US$ 32 billions (Production of cane), Process 580 million tons of cane, 432 mills, 33 million ton of sugar, 29 billion liters of ethanol, 165 million ton of bagasse, 128 million ton of straw

CTC – Cane Technology Center, is involved in the group with the chemical and spectral characterization of bagasse and straw samples and in the generation of near- infrared (NIR) calibration equations to enable other applications such as monitoring and/or process control.

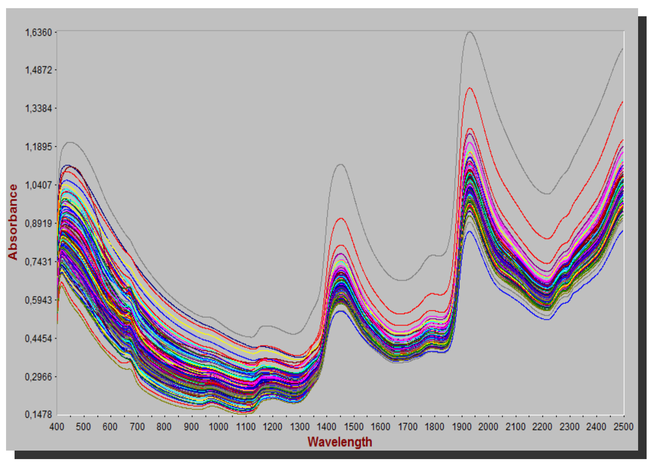


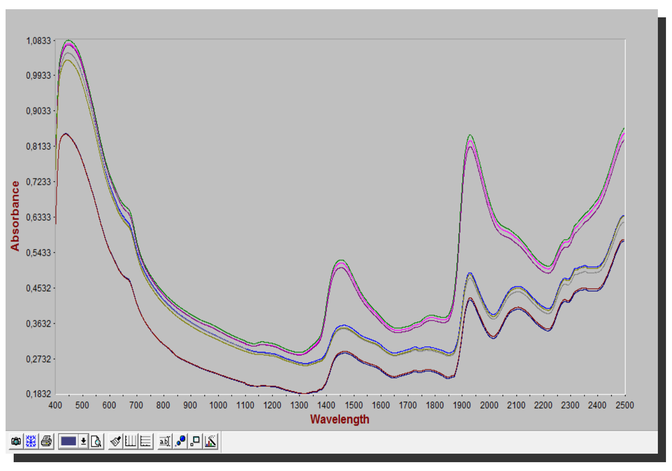
Sugar cane bagasse

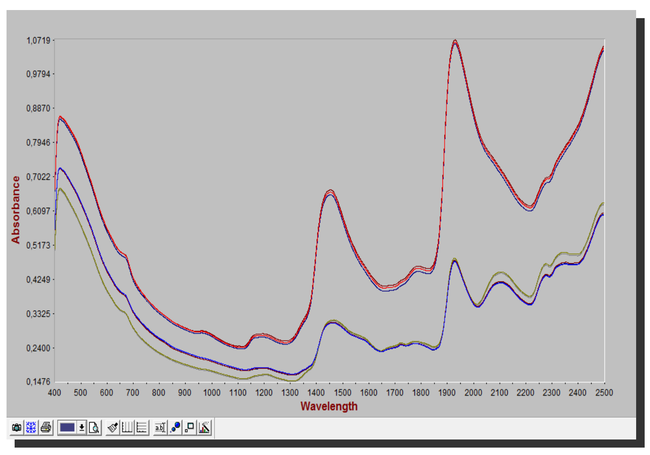
The excess of bagasse has been used lately to generate electricity, sold to other companies to produce steam and in small quantities for animal feed. After mechanical harvest the trash is left on the field to keep the humidity, increase the organic material and to avoid erosion. 4,2% of Brazil electric energy is generate from bagasse

Collecting spectra

The reflectance spectra in the (NIRS) near infrared spectroscopy, region were collected in spectrômetro FOSS XDS MasterLab™ with resolution of 2 cm^{-1} in the spectral region from 420 nm up to 2500 nm. The reflectance mode used. Regression models were constructed using the method of partial least squares (PLS).







Bagasse spectra collection in various states of biomass, as follow		
	Samples	Spectra
WU (Wet Unground)	314	942
DU (Dry Unground)	309	927
DG (Dry Ground)	202	404
DS (Dry Sieved)	202	606
Others:	468	468
	Total Spectra	3347

Bagasse spectra collection in various states of biomass, as follow		
	Samples	Spectra
WU (Wet Unground)	37	111
DU (Dry Unground)	29	87
DG (Dry Ground)	37	74
DS (Dry Sieved)	37	74
Others:	98	98
	Total Spectra	442

Note: DG sample is sieved and DS is the fraction with a particle size 180 um < x < 850 um.
DS is the fraction used for lignocellulosic analysis.

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