

# INTERNATIONAL SOCIETY OF SUGAR CANE TECHNOLOGISTS



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## CHARACTERIZATION OF *SACCHARUM* spp. L. CELL-WALL AT DIFFERENT STAGES OF LEAF SENESCENCE.

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The development of new strategies for bio-ethanol production from ligno-cellulosic complexes requires the understanding of the processes involved in the synthesis and degradation of cell-wall polymers. In this study, chemical analysis of cell-wall from non-senescence and senescent leaves of sugar cane was carried out in order to achieve a neutral monosaccharides profile. This analysis was done by dividing each leaves into three parts: lower, middle and upper thirds from +1 to +8 leaves. Cell walls were hydrolyzed with sulphuric acid to analyze the monosaccharides composition by HPAEC/PAD and the ANOVA LSD was used for statistical analysis. In the gradient within leaves, the amount of arabinose and galactose increased gradually from the lower to upper third. In contrast, the amount of xylose was reduced from the lower to the medium and upper thirds. No significant differences were detected between these last two parts. Data suggests predominance of pectins with neutral arabinans and galactans branches and decrease of arabinoxylans in the upper third. In the gradient between +1 to +8 leaves, it was observed an increase of fucose up to +7 leaves, with a reduction of this monosaccharide in +8 leaves. For other monosaccharides analyzed in this study, no significant differences were observed, suggesting that the physiological process of leaf senescence does not modify cell-wall composition. Therefore, this uniformity of monosaccharides profile on trash might be desirable for the production of ligno-cellulosic ethanol. Changes in monosaccharides profile found in the gradient within leaves might be attributed to leaf structure. A more flexible tip is due to the predominance of pectins in the upper third while a more rigid lower third is due to a higher content of arabinoxylans.