

POSTER SUMMARY

COMPARISON OF NEAR INFRA-RED SPECTROSCOPY (NIRS) AND THE CONVENTIONAL DIRECT ANALYSIS OF CANE (DAC) IN THE DETERMINATION OF CANE QUALITY PARAMETERS

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Abstract

The use of Near Infra-red Spectroscopy (NIRS) as an analytical tool has several advantages over the conventional methods in the sugar industry. Despite having been adopted for the analysis of products in many sugar-processing factories, some companies are yet to adopt the technology. The Zimbabwe sugar industry has just acquired a transmission NIRS instrument and it is in the process of evaluating the possibility of adopting the technology for use in both mill factory products and for cane quality determination. This study aimed to compare the results of NIRS and the conventional Direct Analysis of Cane (DAC) in determining the cane quality parameters. A total of 749 sugarcane samples were obtained from across the fields, and they were analysed concurrently in the laboratory, by using NIRS and the conventional DAC methods. The results of pol, brix, purity and ERC% cane from the two methods were computed and regressed. The regression R^2 value for the brix, pol, purity and ERC% cane was 0.9834, 0.9733, 0.7065 and 0.9484, respectively. While the majority of the samples showed comparable results between NIRS and the conventional DAC, a few samples that deviated from the trend were also observed, which warrants further investigations.

Keywords: Near Infrared Spectroscopy, Direct Analysis of Cane, polarimeter, refractometer, mixed juice, Brix, pol, sucrose, ERC