

MATURITY CURVE OF SWEET SORGHUM IN FUNCTION OF TOTAL SOLUBLE SOLIDS CONCENTRATION

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Sweet sorghum (*Sorghum bicolor* (L.) Moench) has been standing out as a source of feedstock for ethanol production in Brazil from January to April (period characterized as off-season of sugarcane). The aim of this study was to construct a maturity curve of two sweet sorghum cultivars, BRS 508 and BRS 511, in order to identify the ideal point of harvest for each material and estimate the maximum of total soluble solids (TSS) reached by the cultivars. For this purpose, an experiment was carried out at Embrapa Agrossilvipastoril, located in Sinop-MT. The seeds of each cultivar were mechanically sown in contiguous lines, spaced 0.7m, aiming to establish a population 140,000 plants ha⁻¹. Fifteen days after flowering (DAF), plants were harvested weekly during nine weeks (71 DAF), aiming to evaluate TSS of each cultivar along this period of time. The TSS was measured by digital refractometer (°Brix scale) using syrup from stems of each cultivar by an electric milling. The maturity curves of each cultivar were constructed by values of TSS measured during nine weeks and the regression equations were obtained for each cultivar. In order to estimate the optimal harvest moment, the maximum point was calculated by derivation of the original equation. By deriving such equations, it was possible to estimate the number of DAF of each cultivar in order to know the highest TSS concentrations, which can be considered as the point of maximum maturity. In addition, the maximum TSS concentrations were estimated for each cultivar. The results showed that the cultivar BRS 508 obtained maximum concentration of 20.4 °Brix at 51 DAF. On the other hand, the cultivar BRS 511 presented a TSS peak value of 17.6 °Brix at 50 DAF. It was noted that BRS 508 obtained a higher content of TSS than BRS 511, with a magnitude approximately of 2 °Brix. However, the maturity cycles of both cultivars were similar, 50 and 51 DAF (around 130 days after sowing). After this period, the TSS concentrations tended to decrease for both genotypes, decreasing, consequently, the yield of ethanol per volume of syrup. The next stage of this work will be the evaluation of TSS and the volume of syrup produced, such characteristics are better correlated to the ethanol production and will help in the identification of the cultivar with better performance.



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ABSTRACTS

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