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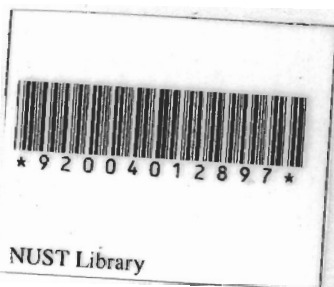
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Expression of Amylase Isozymes in *Sorghum bicolor* with
Germination time



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ABSTRACT MENTS

Amylase isozyme expression with time was investigated in 4 accessions of *Sorghum bicolor* (1,2,3 and 4). Accession 1 was a white sorghum, accession 2 and 3 were red sorghums and accession 4 the cross between a white and ~~the~~ ^{the} red sorghum. These accessions were germinated on a daily basis over a period of 7 days such that every accession had 1 day old seeds, [2 day old seeds] up to 7 day old seeds. On the 7th day, enzymes were extracted from all the 28 seed samples by crushing 1g of each accession in 1 ml of extraction buffer using a pestle and mortar. Amylase isozymes were then separated by Zymography, which employs the use of Native Polyacrylamide Gel Electrophoresis. When electrophoresis was complete, the gel was soaked in a digestion buffer for 3 hrs at 40 °C. The starch-iodine staining method was used to assay for amylase isozymes. Amylase isozyme expression was found to increase for all accessions from day 1 to between day 3 and 5 after which it began to drop at day 6. Accessions 1 and 4 showed maximum expression on day 4 whilst accession 2 on day 3 and accession 3 on days 4 and 5. A relationship was observed between radicle length and expression of isozymes. The accessions, which showed greater expression of amylase isozymes, had longer radicles. The investigation therefore led to the conclusion that different accessions of sorghum can be selected for malting for different products on the basis of amylase isozyme expression since different accessions show different isozyme expression to different levels after germination for a specific period of time. Also when maltsters are testing a certain accession for its malting potential, it should be evaluated over a period of six days and not only consider the third day of germination which is the industrial standard since maximum expression day of accession differ. A preliminary test, which breeders can use when they want to select for amylase production, is growing the seeds and measuring radicle ^{length}.