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# The potential of sweet sorghum as a source of fermentable substrates

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## Sweet sorghum

A C4 grass that could  
become the choice crop  
for bioenergy  
production



Figure 1: Sweet sorghum in a field

## Sweet sorghum

This crop is anatomically similar to sugarcane

Sweet sorghum is also characterized by the presence of sweet juice in the stem at maturity.



Figure 1: Sweet sorghum in a field

## Sweet sorghum

Unlike Sugarcane, sweet sorghum

- matures in 4-5 months
- has high water-use efficiency
- often grown under rain-fed conditions



Figure 1: Sweet sorghum in a field



## Bioethanol

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Given the above characteristics, sweet sorghum is a promising feedstock for the production of biofuels, especially bioethanol.

- The demand for biofuels (bioethanol and biodiesel) is increasing.
- Bioethanol accounts for 90% of the total biofuel production in the world.



## Bioethanol

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So far, current bioethanol production depends on maize and sugarcane

However, these crops have high water demand whereas sweet sorghum has low water demands. This underlies the need for research into alternative crops.

# Bioethanol

Therefore, we need to explore the agro-industrial potential of crops that are so far untapped.

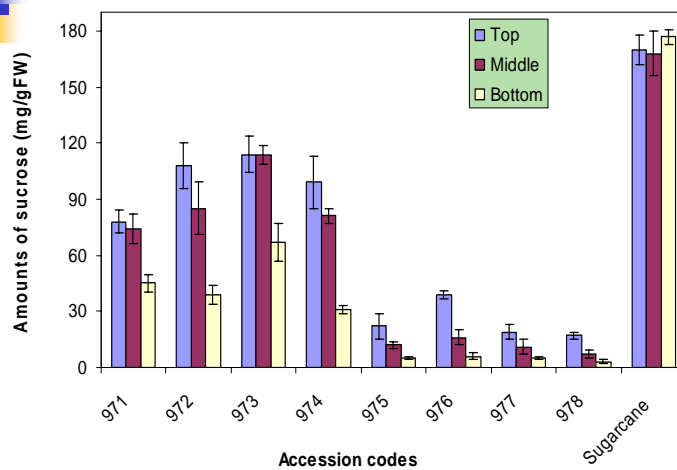
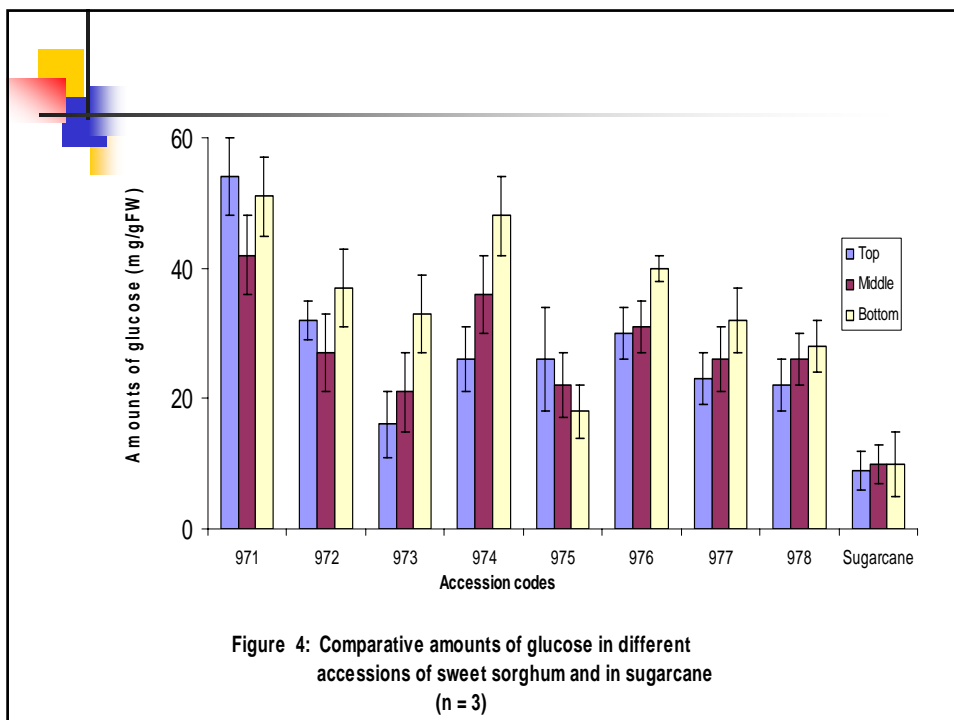
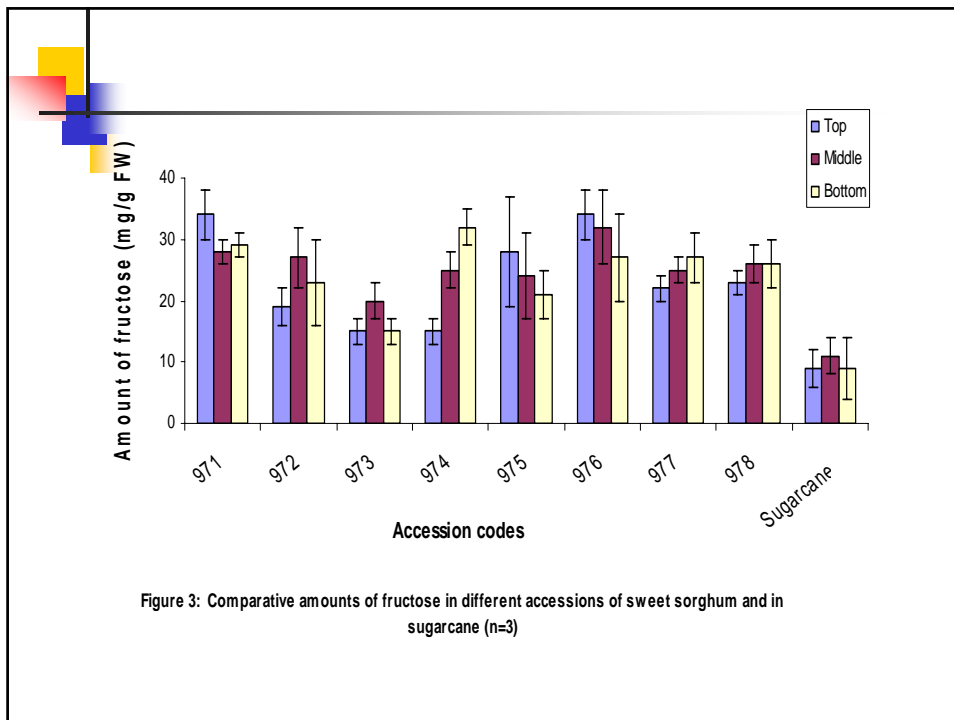
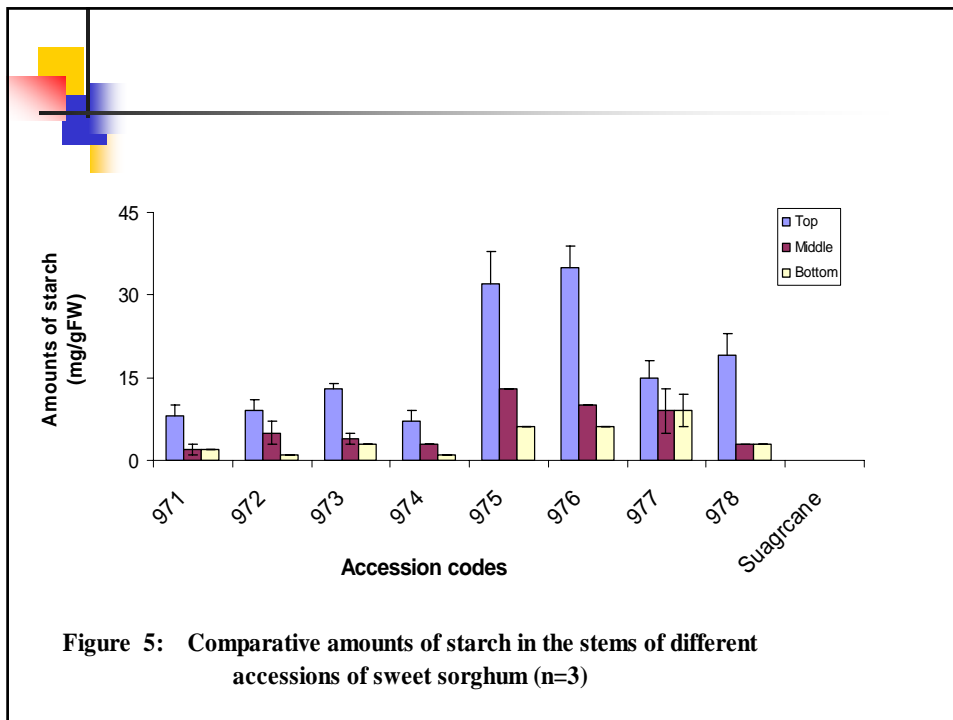


Figure 2 : Comparative amounts of sucrose in different accessions of sweet sorghum and in sugarcane (n = 3)





## Discussion

**Sweet sorghum:**

- accumulates significant amounts of fermentable substrates in the stem at maturity,
- accessions investigated in this study have good potential as sources of fermentable substrates,
- partitions fixed carbon in a different manner from sugarcane.



## Conclusion

- A more extensive investigation of the parameters studied here is necessary
- Sweet sorghum is an attractive bioenergy crop for dry climates
- It is not a staple food crop



thank you!