A

B

C

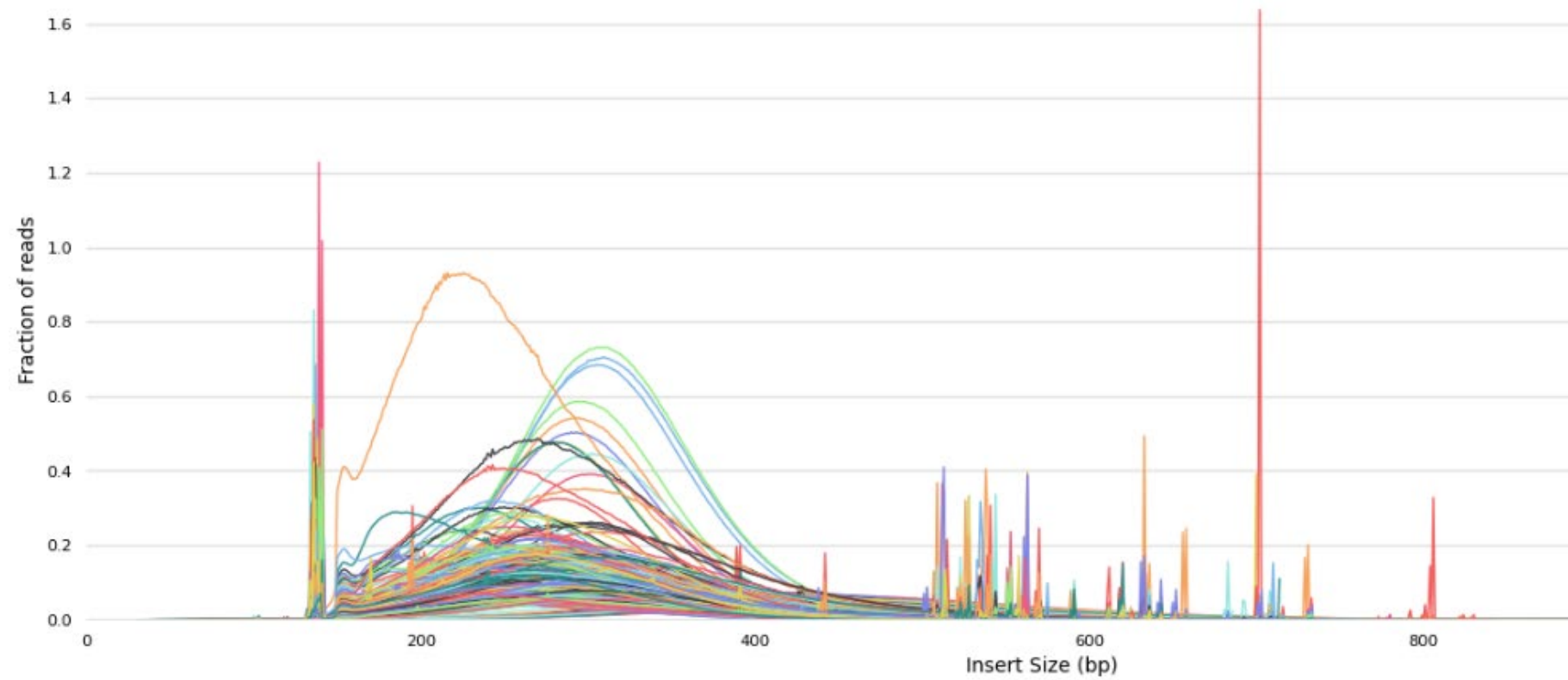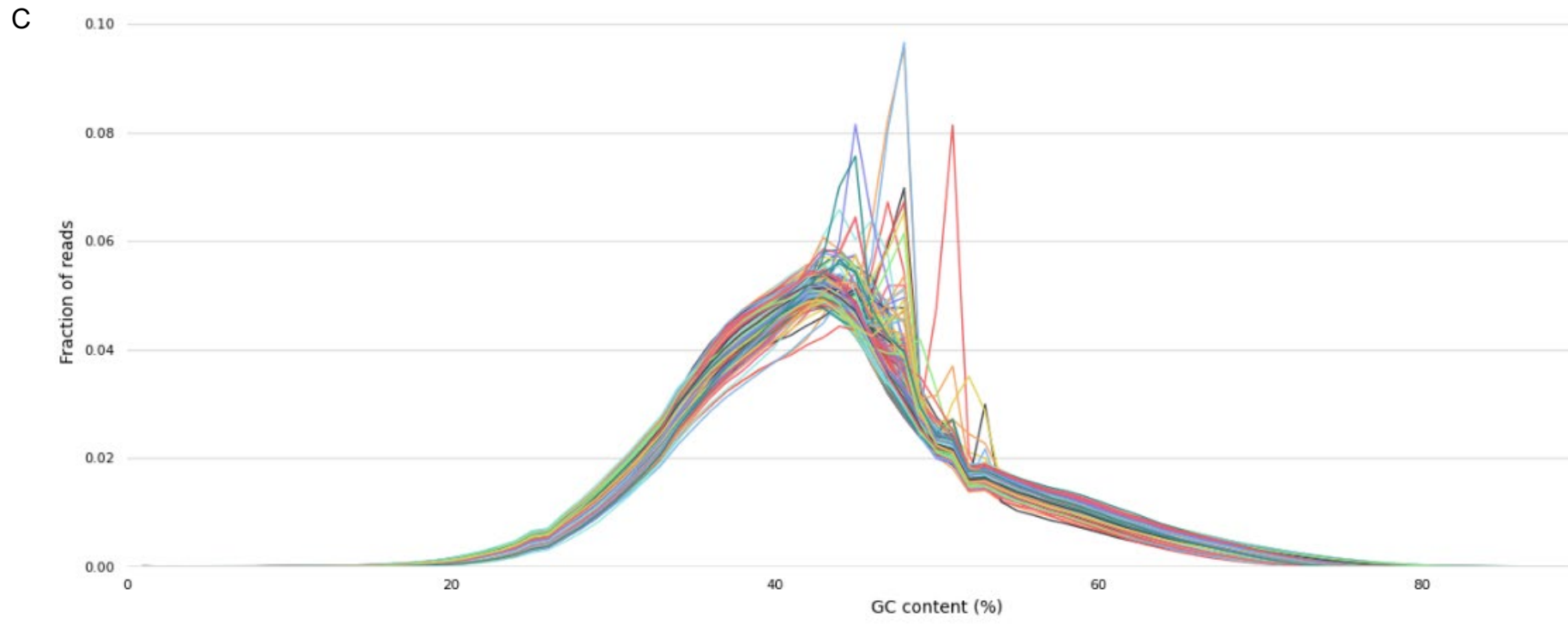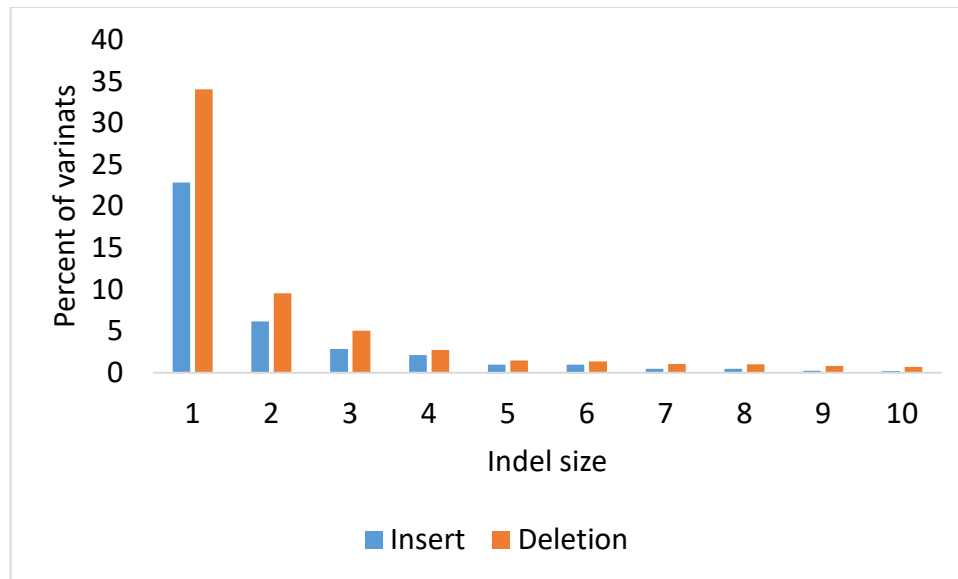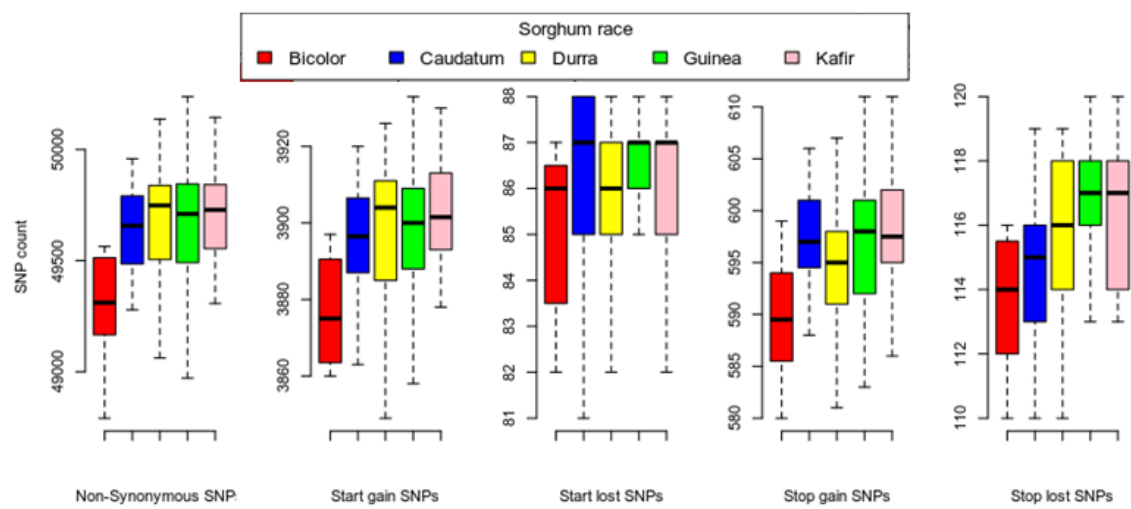**Supplementary Figure 1:** Sorghum WGRS mapped stats showing the **A)** reference genome covered in both horizontal and vertical coverage, **B)** inset size of complete datasets **C)** GC content in all sorghum accessions.

A



B



C
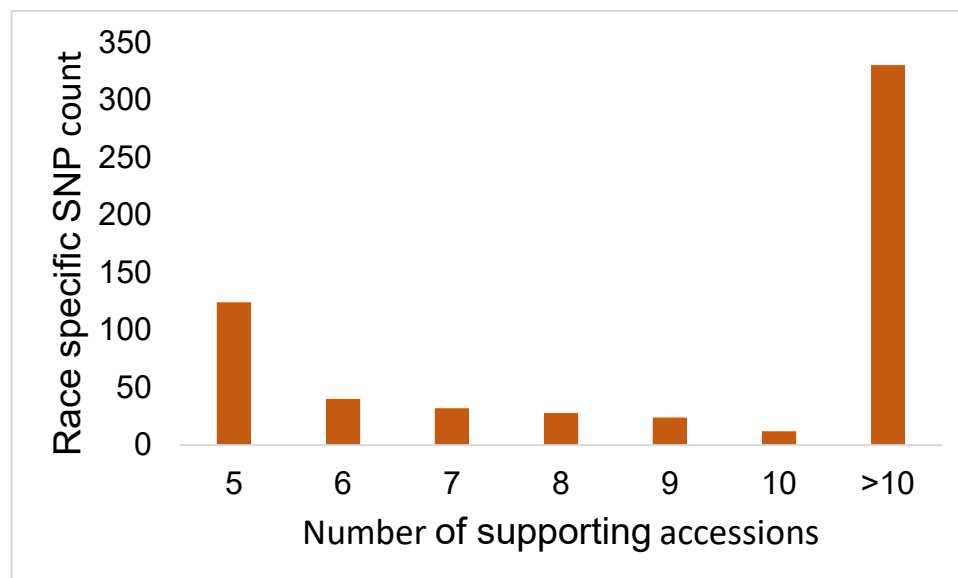
D
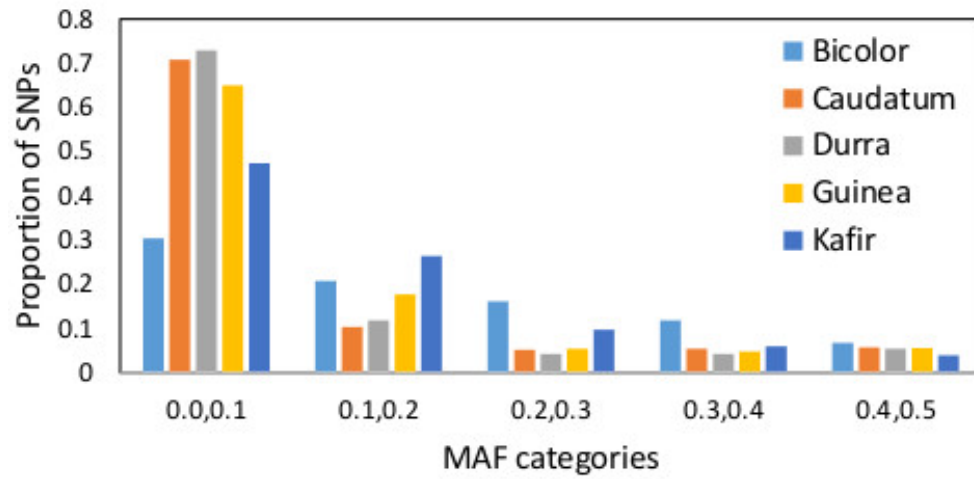


**Supplementary Figure 2:** Genomic landscape of sorghum. A) Indel length distribution B) SNP annotations C) race-specific SNP calls with a number of supporting sorghum accessions D) The distribution of minor allele frequencies for all sorghum races. SNPs were binned into five categories on the MAF.

**Supplementary Figure 3.** Sorghum race accession NJ tree with nodes in blue color are *Guinea*, pink colour accessions are *Kafir*, red color for *bicolor*, brown color in *Durra*, purple color for *Caudatum*. Highlighted node labels are the most distinct accessions in respective sorghum race accessions. The phylogenetic tree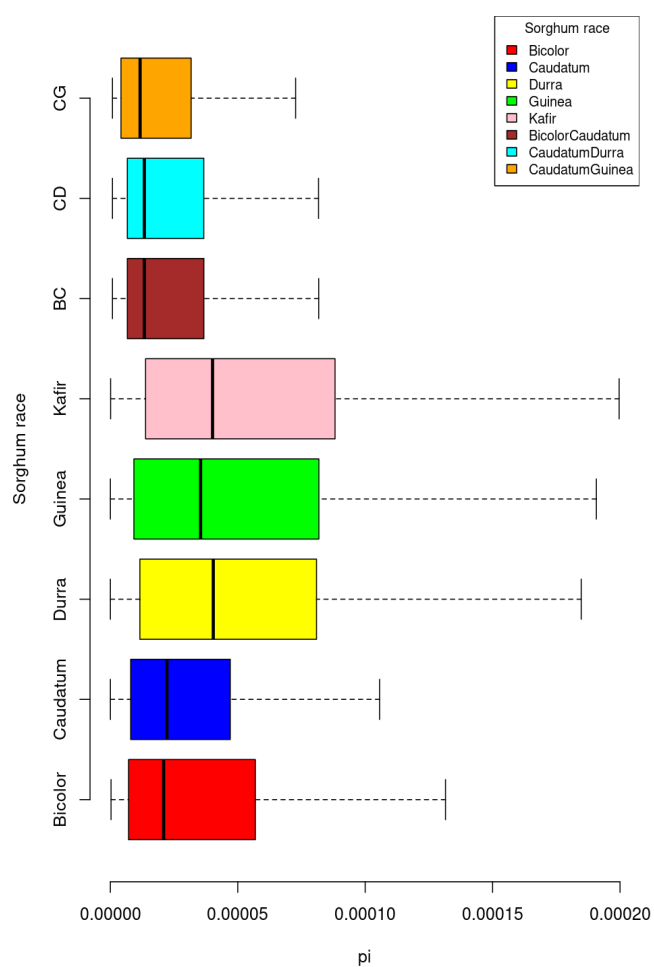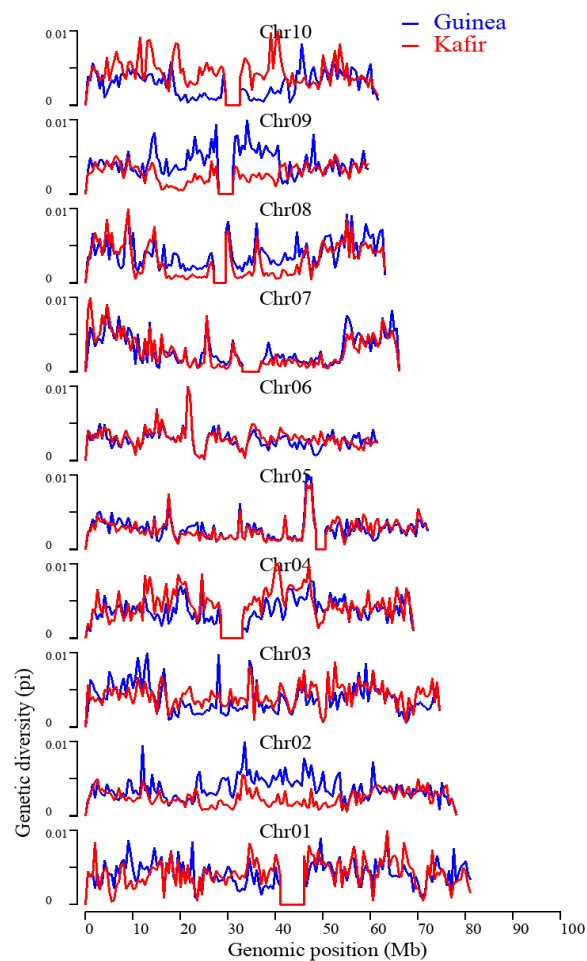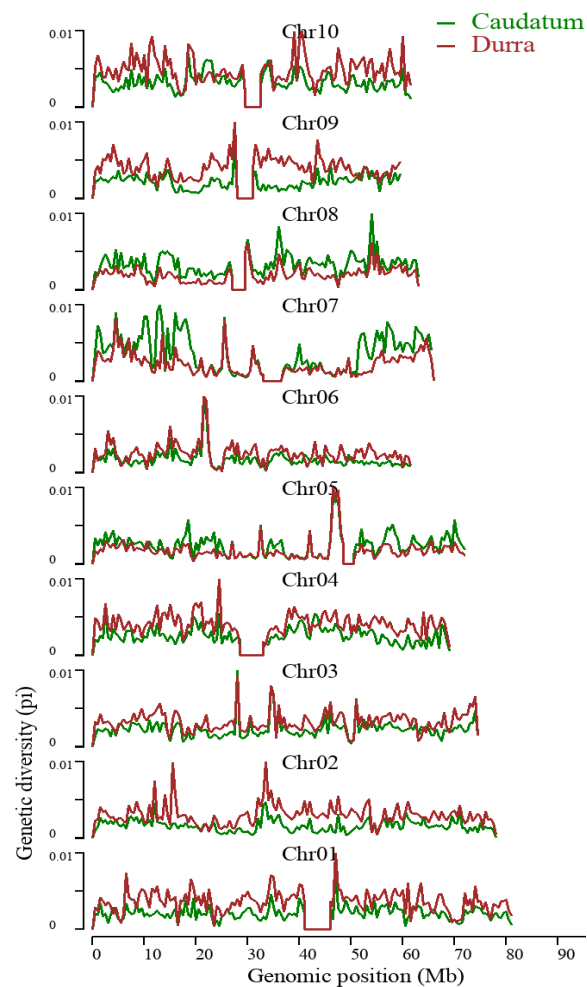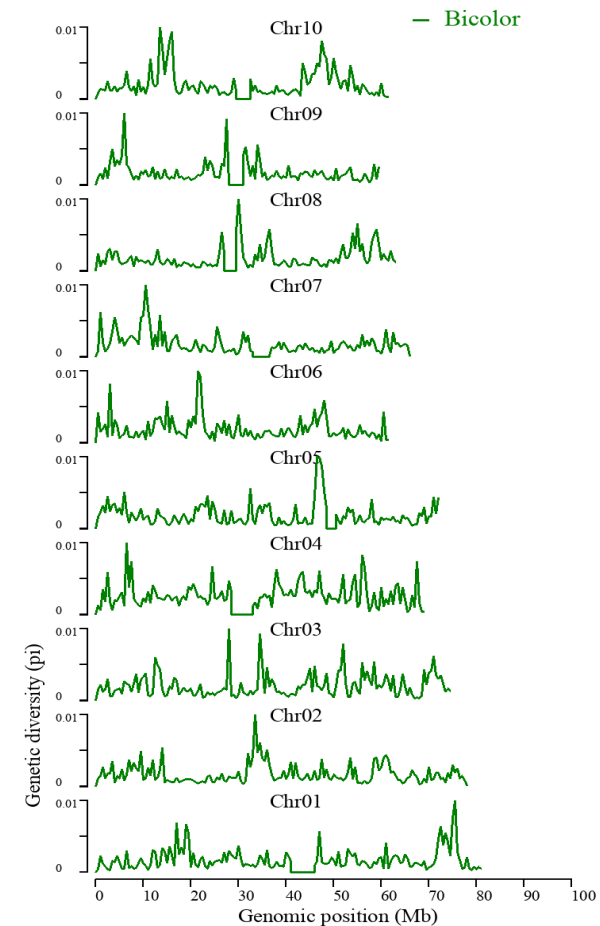 contained a distinct cluster of 63 *Guinea* race accessions (nodes in blue colour) mixed with a few other race individuals, like PI221662, PI248317, PI267653 and PI148084 from *Durra* race (nodes in brown colour), PI660555 and NSL365694 from *Kafir* race (nodes in pink colour), IS12697 from *bicolor* race (nodes in red colour). The other sorghum race clusters were split with non-corresponding sorghum race accessions. For example, *Durra* race has 91 accessions split into two clusters with *Caudatum* and *Kafir* race accessions. The sorghum *bicolor* race which was assumed to be more distinct to other race were placed mostly in *Durra* and *Guinea* race cluster. Among the *bicolor* race, the China origin accessions were grouped distinctly in *Durra* cluster compared to other *bicolor* race accessions.
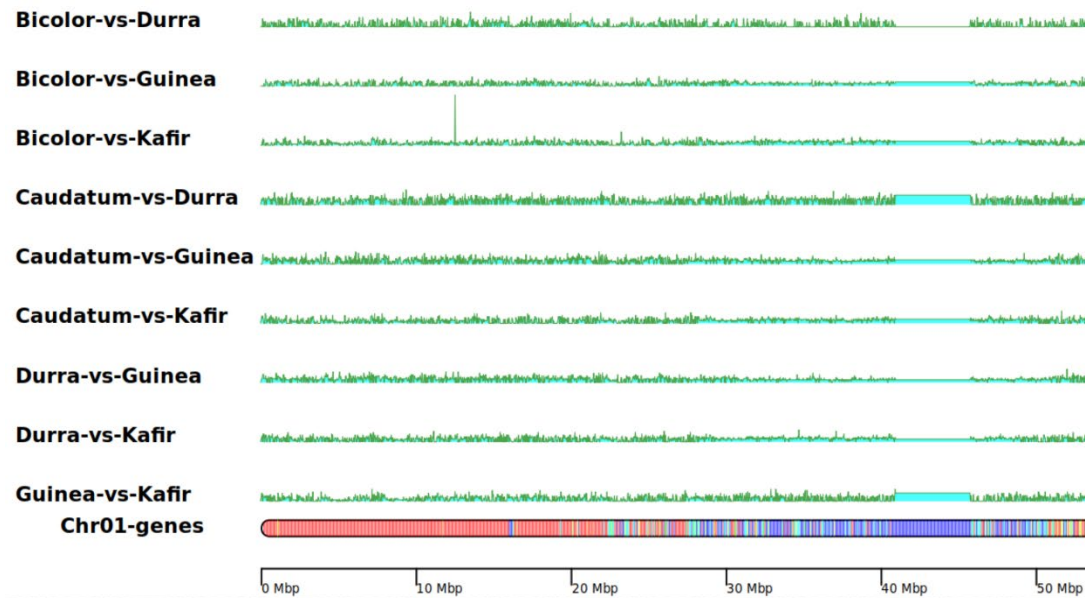
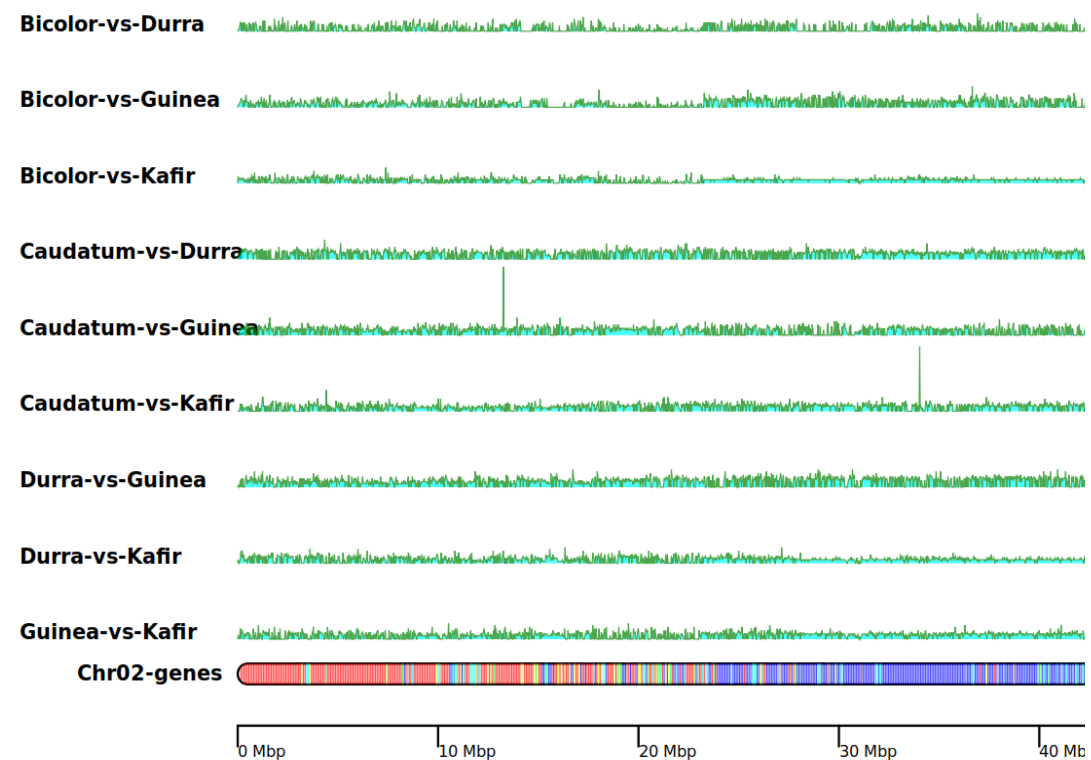**Supplementary Figure 4.** The nucleotide diversity comparison between the five sorghum races and three intermediate races.

**Supplementary Figure 5.** Nucleotide diversity (π) in sorghum race populations **A)** Guinea and kafir **B)** Caudatum and Durra **C)** Bicolor
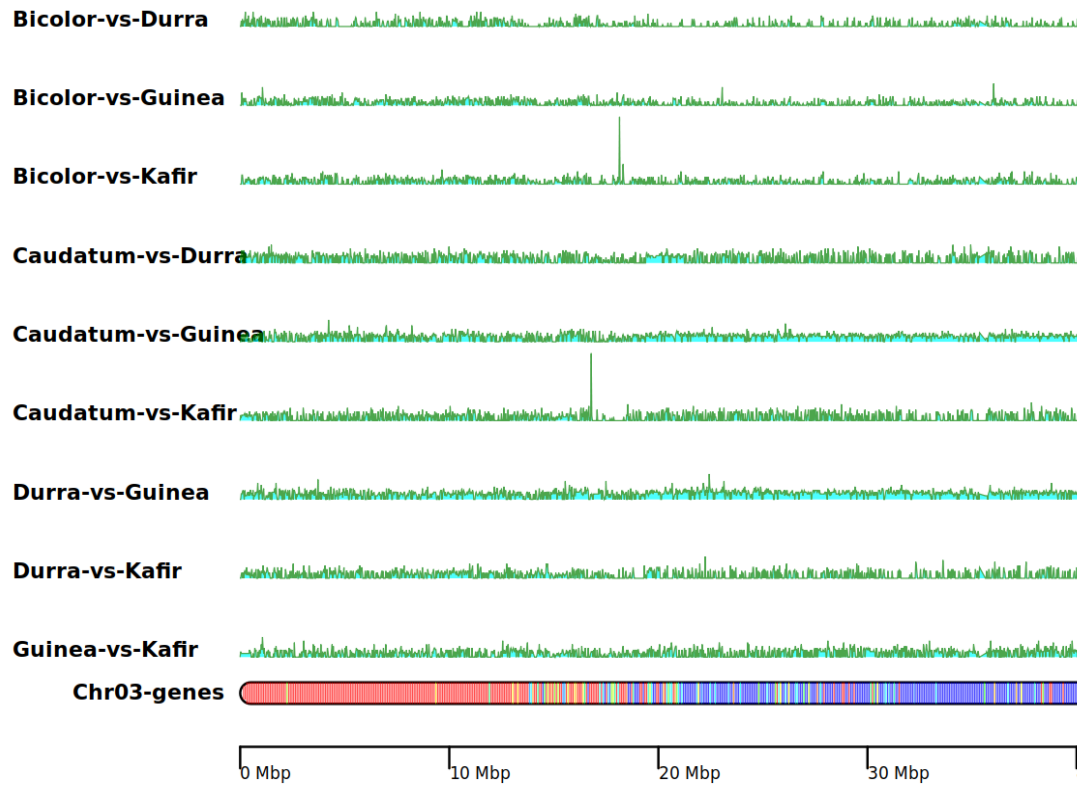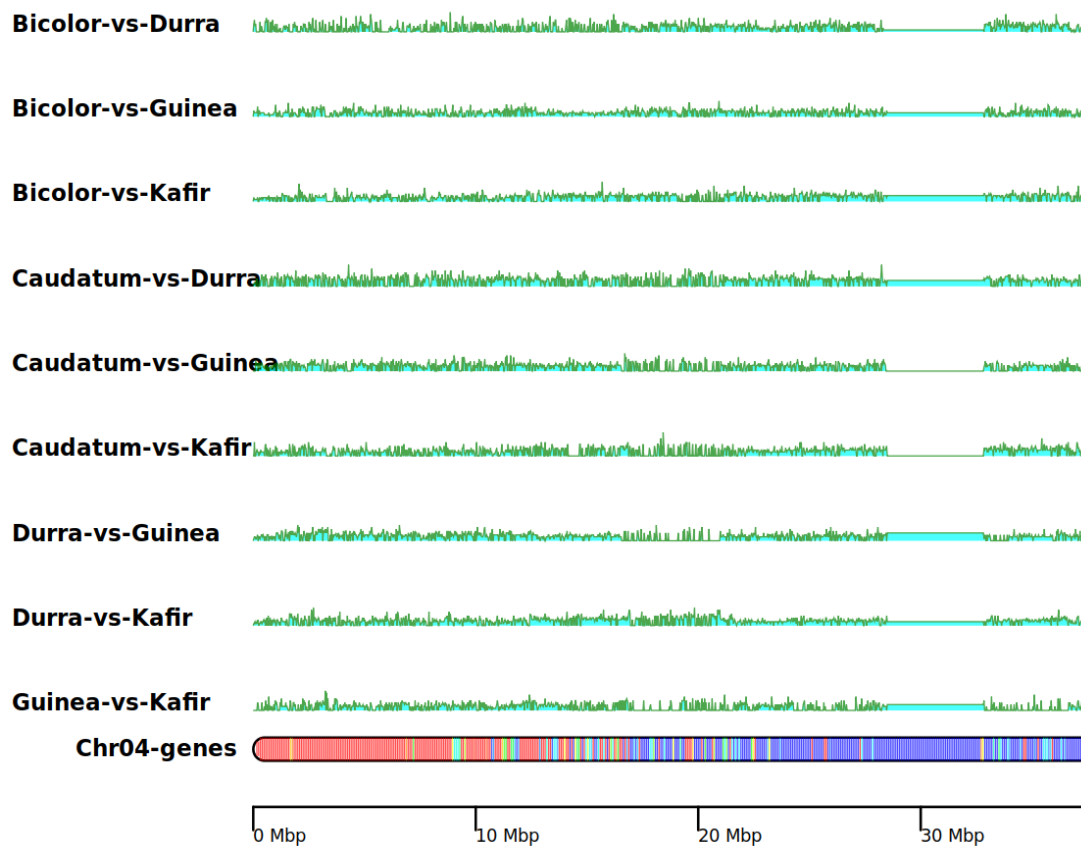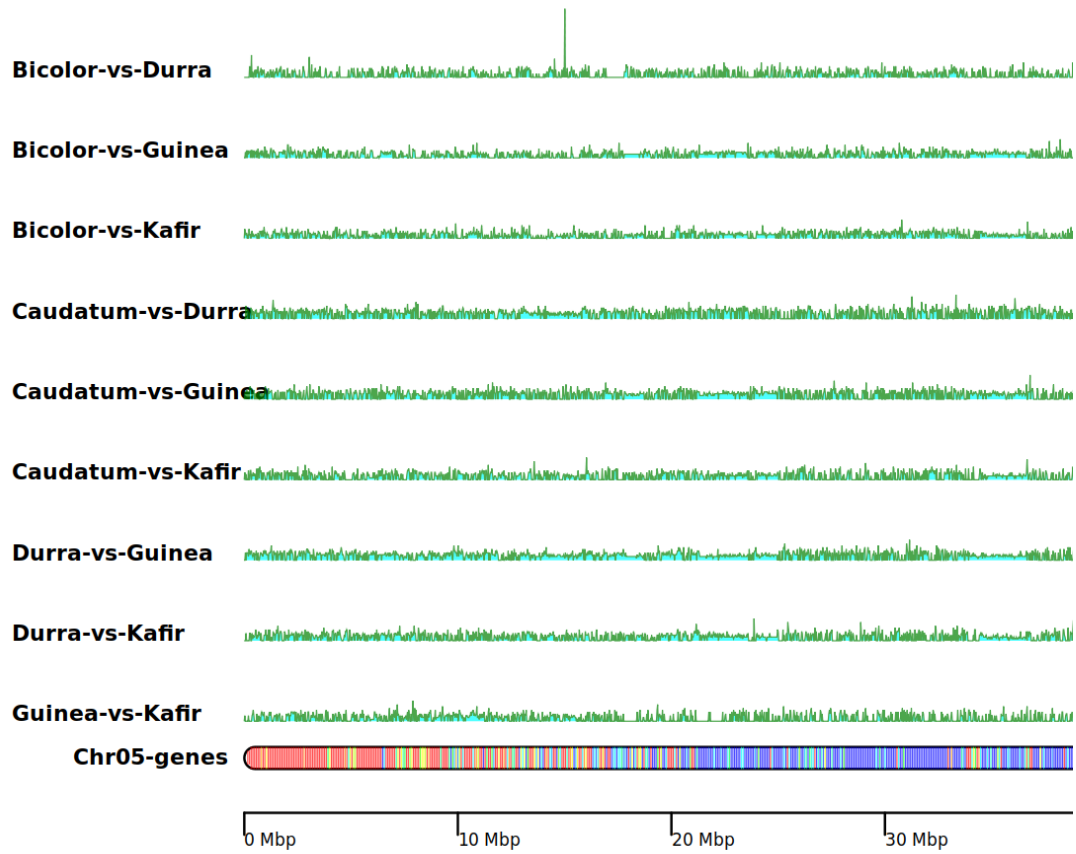
**A**

Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir
Chr01-genes

0 Mbp    10 Mbp    20 Mbp    30 Mbp    40 Mbp    50 Mbp

**B**

Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir
Chr02-genes

0 Mbp    10 Mbp    20 Mbp    30 Mbp    40 Mb

C

Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir

Chr03-genes

0 Mbp    10 Mbp    20 Mbp    30 Mbp

D

Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir

Chr04-genes

0 Mbp    10 Mbp    20 Mbp    30 Mbp

**E**



Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir

Chr05-genes

0 Mbp        10 Mbp        20 Mbp        30 Mbp

**F**



Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir

Chr06-genes

0 Mbp          10 Mbp          20 Mbp          30 Mbp

**G**

Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir

Chr07-genes

0 Mbp          10 Mbp          20 Mbp          30 Mbp

**H**

Bicolor-vs-Durra

Bicolor-vs-Guinea

Bicolor-vs-Kafir

Caudatum-vs-Durra

Caudatum-vs-Guinea

Caudatum-vs-Kafir

Durra-vs-Guinea

Durra-vs-Kafir

Guinea-vs-Kafir

Chr08-genes

0 Mbp          10 Mbp          20 Mbp          30 Mbp

I



| | |
|---|---|
| **Bicolor-vs-Durra** | |
| **Bicolor-vs-Guinea** | |
| **Bicolor-vs-Kafir** | |
| **Caudatum-vs-Durra** | |
| **Caudatum-vs-Guinea** | |
| **Caudatum-vs-Kafir** | |
| **Durra-vs-Guinea** | |
| **Durra-vs-Kafir** | |
| **Guinea-vs-Kafir** | |
| **Chr09-genes** | |

0 Mbp          10 Mbp          20 Mbp          30 Mbp

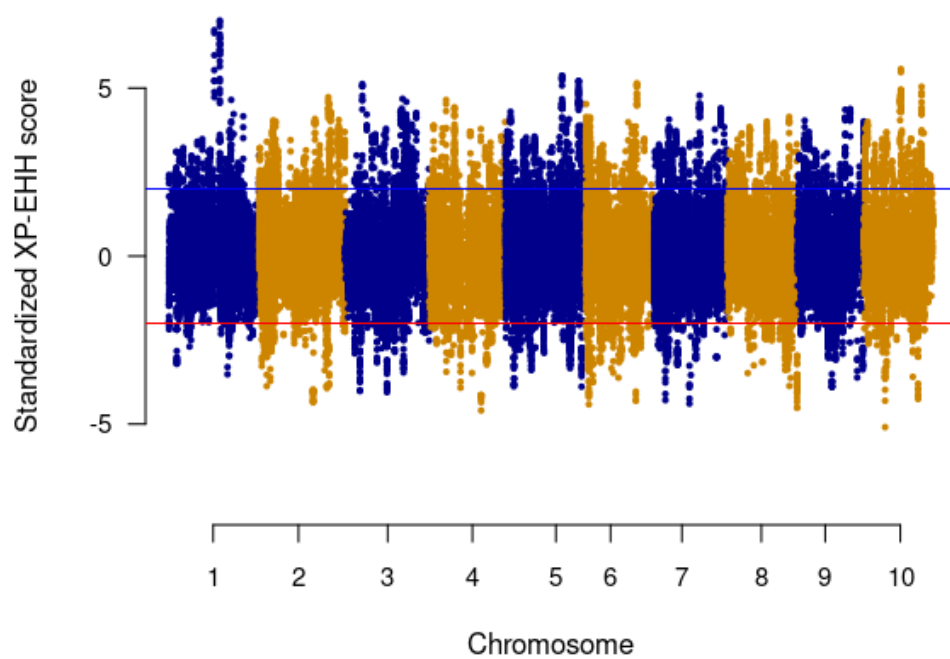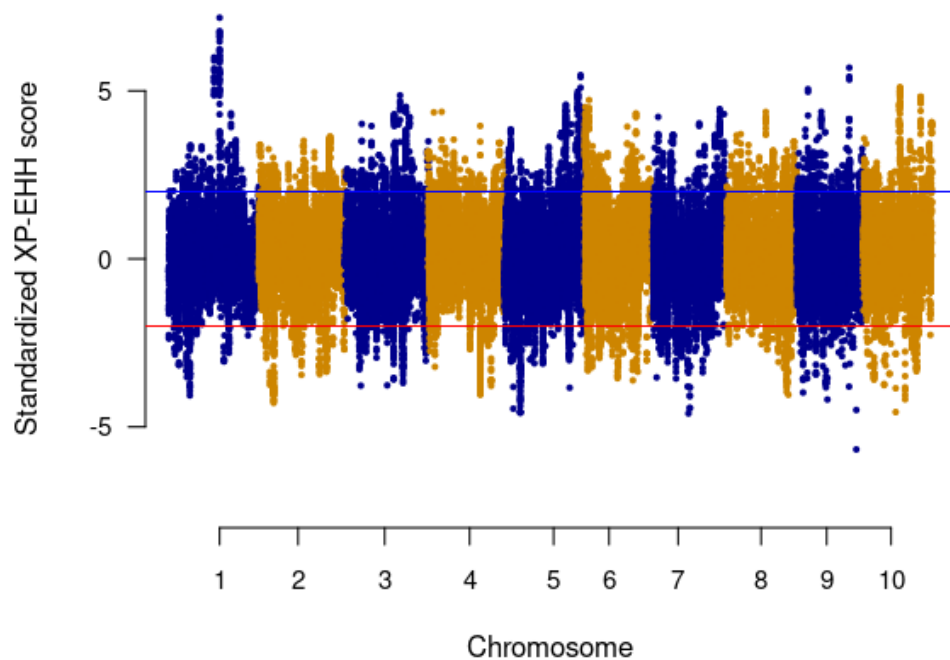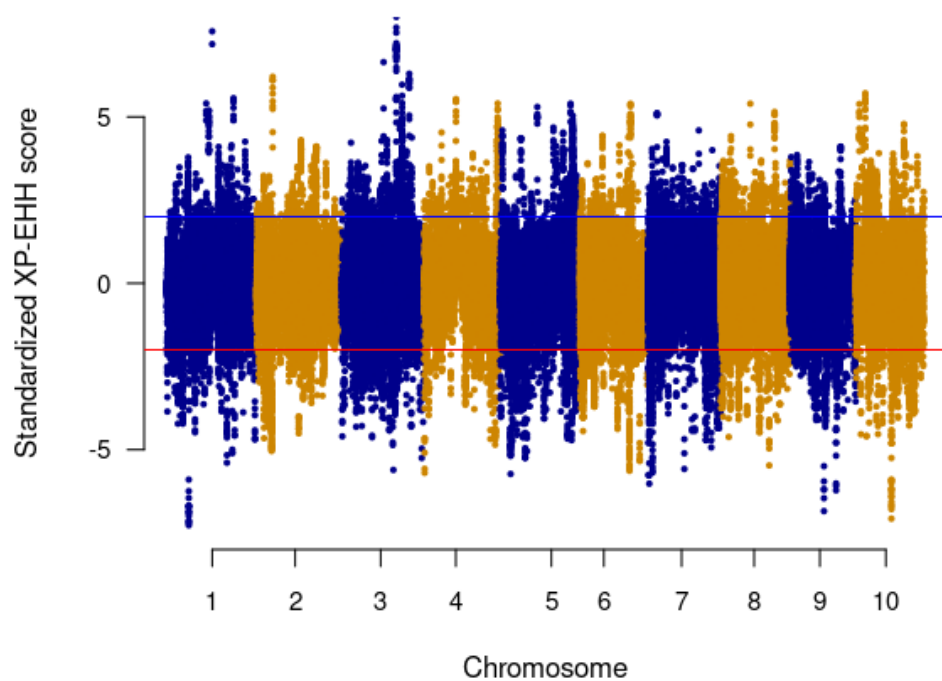**Supplementary Figure 6.** Pairwise $F_{ST}$ across the chromosomes of sorghum race populations and gene density heatmap on respective chromosomes.

A

**XP-EHH for bicolor-caudatum population**



B

**XP-EHH for bicolor-durra population**

C

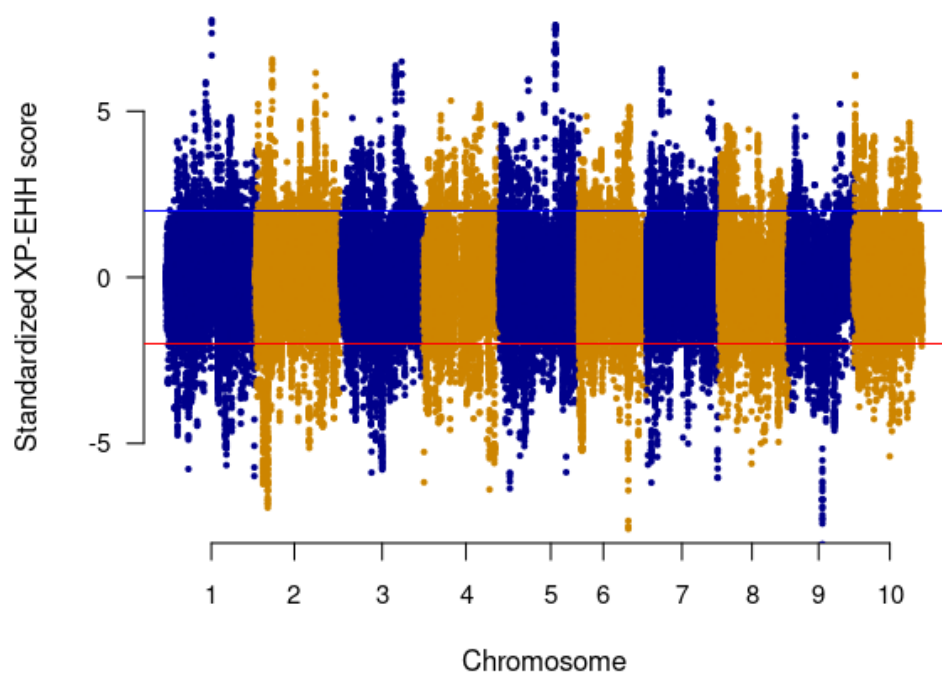**XP-EHH for bicolor-guinea population**
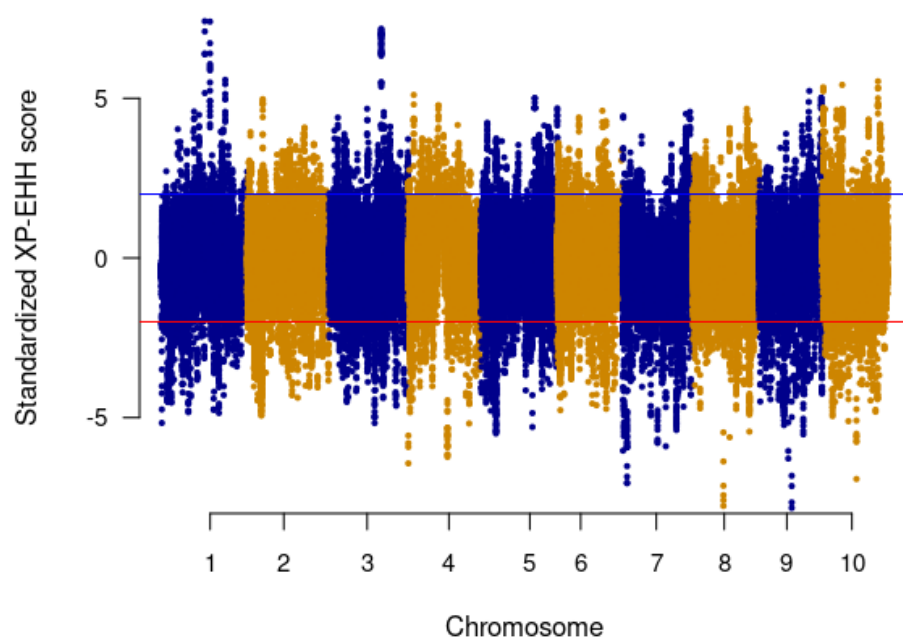


D

**XP-EHH for bicolor-kafir population**

E

**XP-EHH for durra-caudatum population**



F

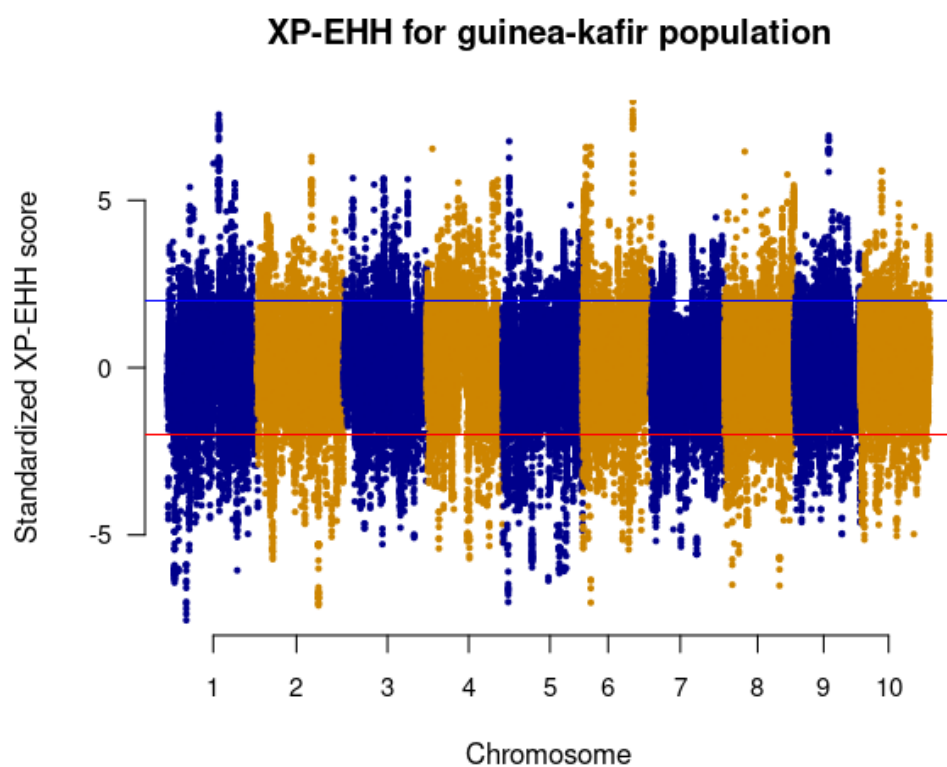**XP-EHH for durra-guinea population**

G

**XP-EHH for durra-kafir population**



H

**XP-EHH for guinea-caudatum population**
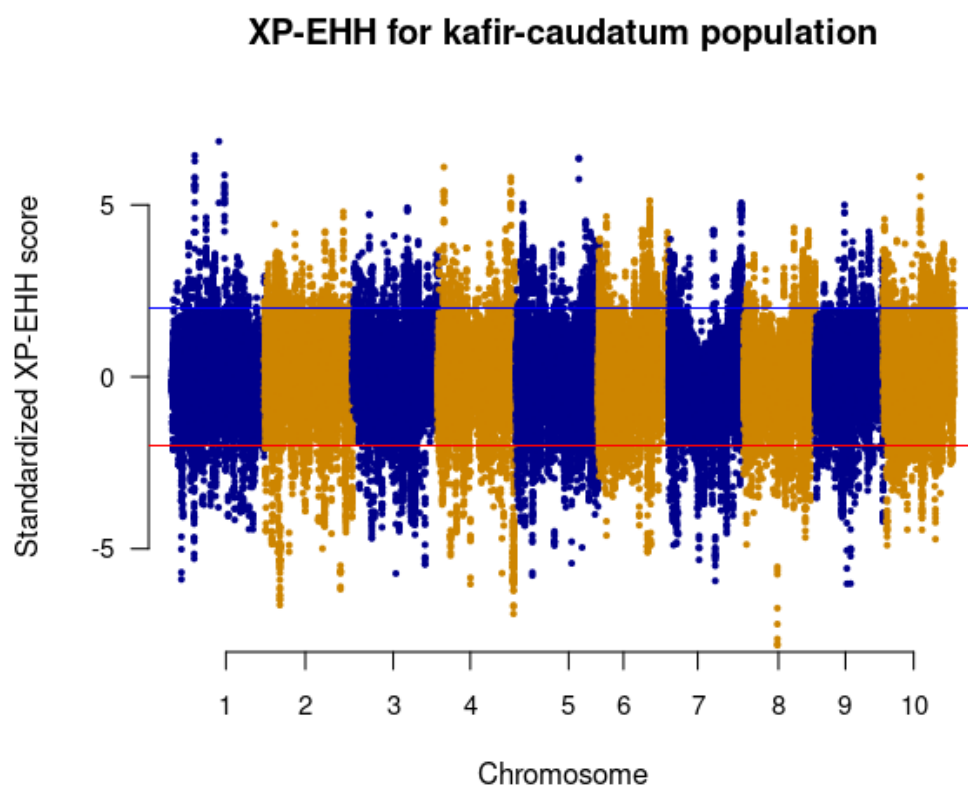
I

**XP-EHH for guinea-kafir population**



J

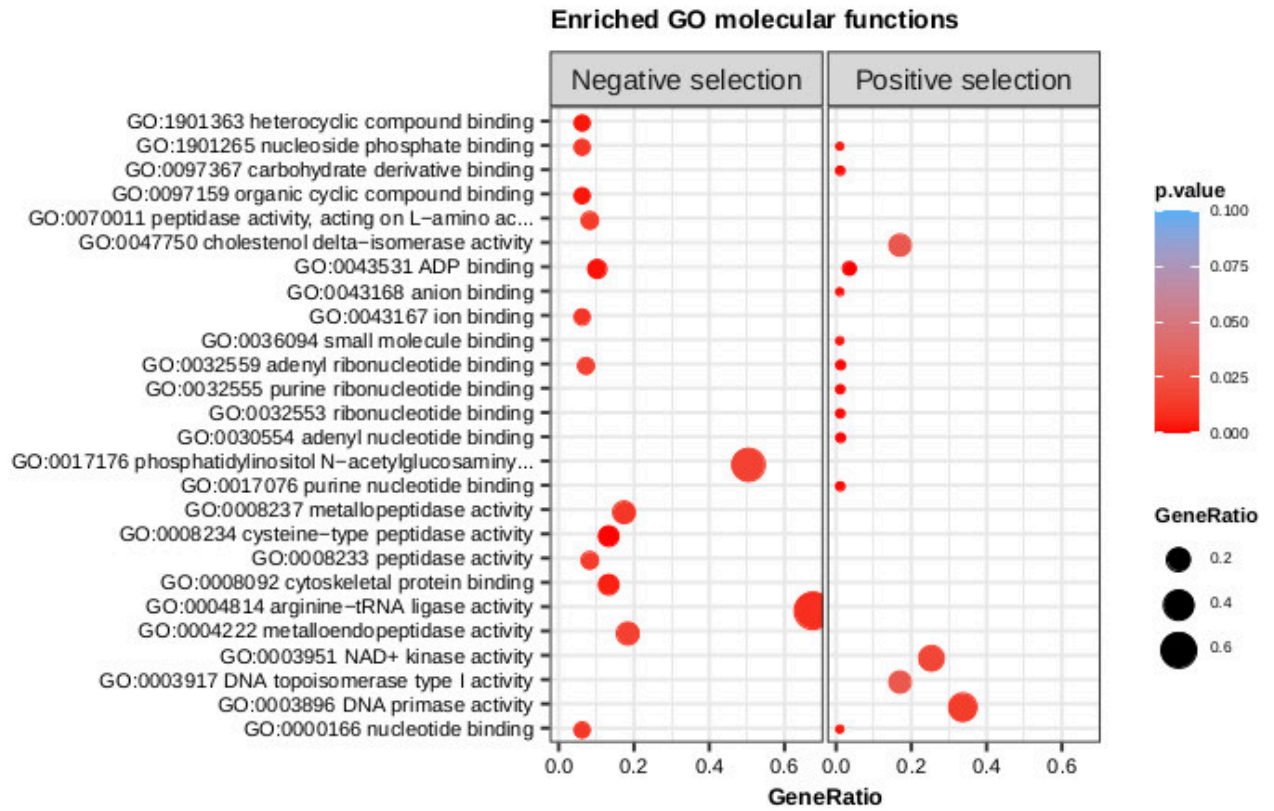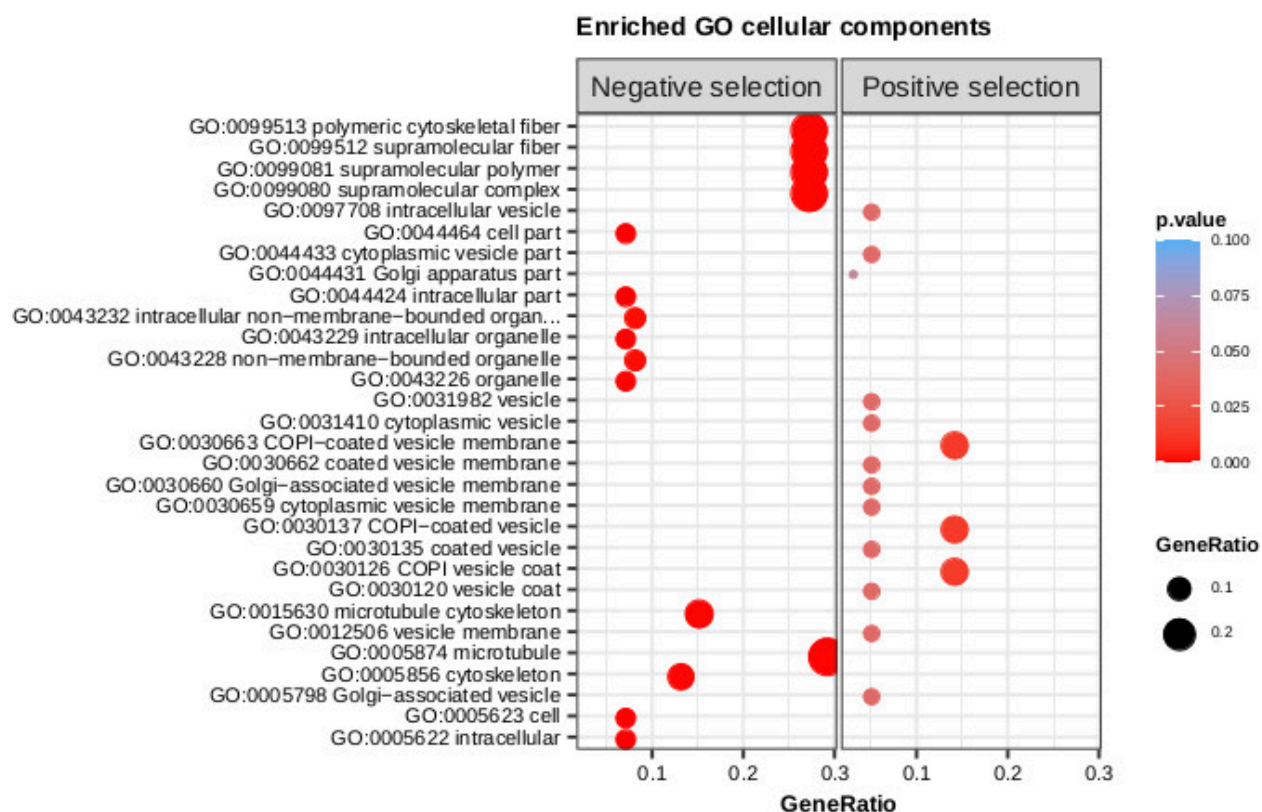**XP-EHH for kafir-caudatum population**
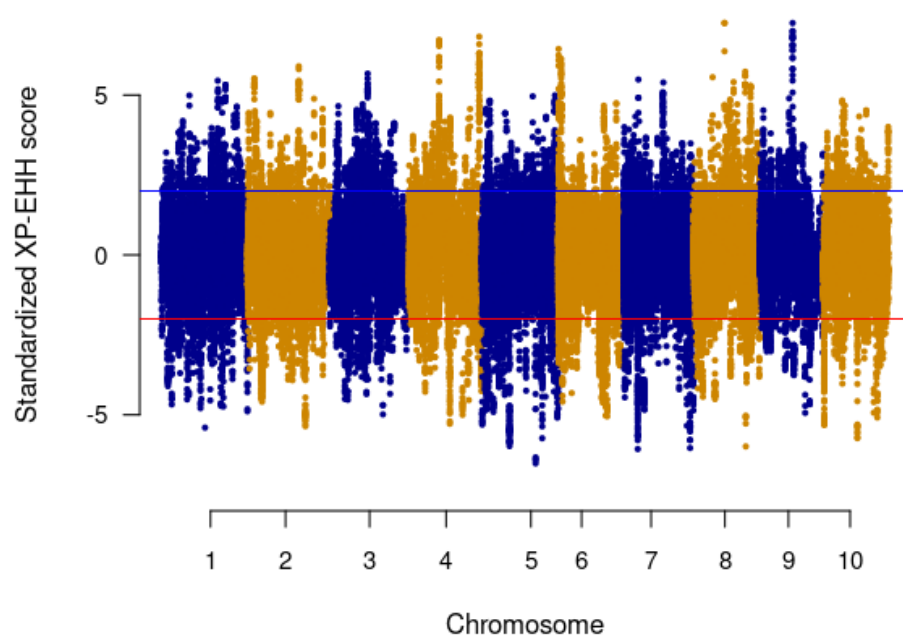


**Supplementary Figure 7.** Distribution of standardized XP-EHH scores in the sorghum race population comparison

A

**Enriched GO molecular functions**



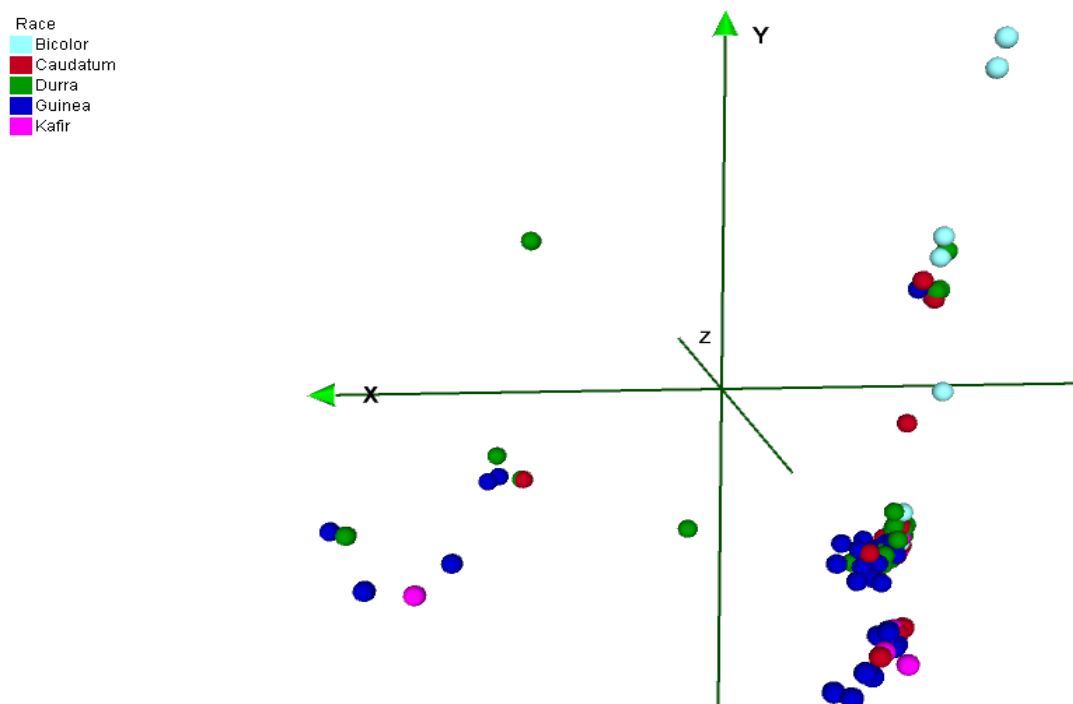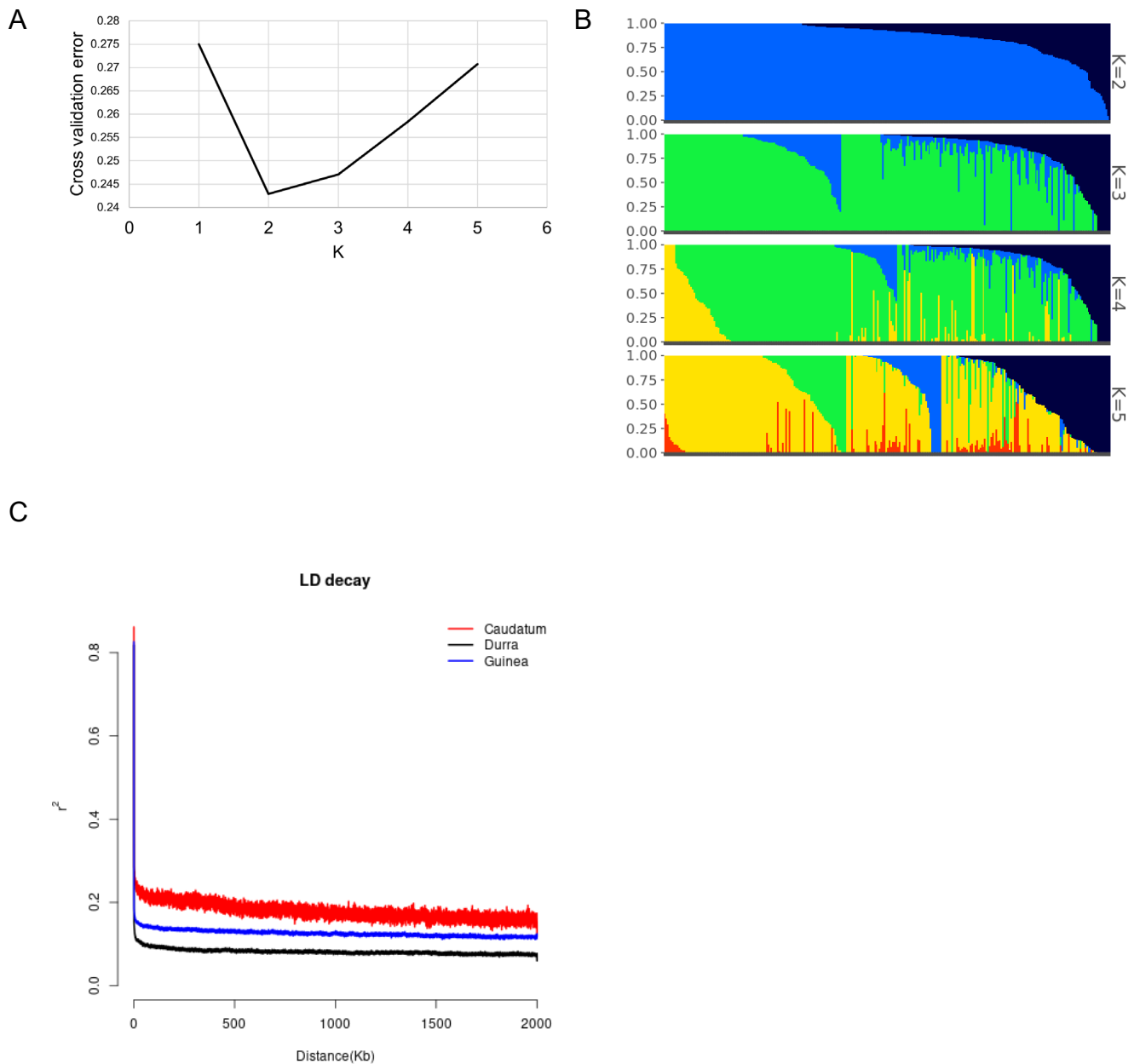| | Negative selection | Positive selection |

GeneRatio

B



**Supplementary Figure 8.** Enrichment of genes under selection pressure for **A)** molecular function **B)** Cellular components.

**Supplementary Figure 9:** PCO analysis of sorghum accessions shows the clusters of accessions with different races.

**Supplementary Figure 10:** Structure analysis of the sorghum race population shows A) the low cross validation error for K 2,3 B) the population structure with different K values and C) the LD decay in the sorghum race population having more than 50 accessions. Rapid LD decay was observed in Durra followed by Guinea and Caudatum.