

Supplementary Materials: Genetic Profiling of *Aspergillus* Isolates with Varying Aflatoxin Production Potential from Different Maize Growing Regions of Kenya

Richard Dooso Oloo, Sheila Okoth, Peter Wachira, Samuel Mutiga, Phillis Ochieng, Leah Kago, Fredrick Nganga, Jean-Baka Domelevo Entfellner and Sita Ghimire

Table S1. Clusters of *Aspergillus flavus* isolates based on ITS sequences showing all the isolates in each cluster.

Cluster	Isolate Code	Total Isolates	NCBI Identity
1	26	1	<i>A. flavus</i>
4	42	1	<i>A. flavus</i>
2	167	1	<i>A. flavus</i>
3	199	1	<i>A. flavus</i>
5	16, 160, 181, 21, 216, 219, 22, 224, 225, 25, 36, 39, 52, 64	14	<i>A. flavus</i>
6	161	1	<i>A. flavus</i>
7	104, 105, 106, 118, 120, 4, 5, 60, 62, 63, 72 1, 10, 100, 101, 102, 103, 107, 108, 109, 11, 110, 111, 112, 113, 114, 115, 116, 117, 119, 12, 121, 122, 123, 124, 125, 126, 127, 128, 129, 13, 130, 131, 132, 133, 134, 137, 138, 139, 14, 140, 141, 142, 145, 146, 147, 148, 149, 15, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 162, 163, 164, 165, 168, 17, 170, 171, 172, 173, 174, 179, 18, 182, 183, 184, 185, 186, 187, 188, 189, 19, 190, 191, 192, 193, 194, 195, 196, 197, 198, 2, 20, 200, 201, 202, 203, 204, 205, 207, 208, 209, 210, 211, 212, 213, 214, 215, 217, 218, 220, 221, 222, 223, 226, 227, 228, 229, 23, 230, 231, 232, 233, 234, 235, 24, 28, 29, 3, 30, 31, 32, 33, 34, 35, 37, 38, 40, 41, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 61, 65, 66, 67, 68, 69, 7, 70, 71, 73, 74, 75, 76, 77, 78, 79, 8, 85, 86, 87, 88, 89, 9, 90, 91, 92, 93, 95, 96, 97, 98, 99	11	<i>A. flavus</i>
8	195, 196, 197, 198, 2, 20, 200, 201, 202, 203, 204, 205, 207, 208, 209, 210, 211, 212, 213, 214, 215, 217, 218, 220, 221, 222, 223, 226, 227, 228, 229, 23, 230, 231, 232, 233, 234, 235, 24, 28, 29, 3, 30, 31, 32, 33, 34, 35, 37, 38, 40, 41, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 6, 61, 65, 66, 67, 68, 69, 7, 70, 71, 73, 74, 75, 76, 77, 78, 79, 8, 85, 86, 87, 88, 89, 9, 90, 91, 92, 93, 95, 96, 97, 98, 99	186	<i>A. flavus</i>
9	206	1	<i>A. flavus</i>
10	135	1	<i>A. flavus</i>

Table S2. Clusters of *Aspergillus flavus* isolates with the positions showing nucleotide substitutions, deletions and insertions on ITS gene region

Isolate Cluster Group	Position and type of SNP observed	Total No. of SNPs
Cluster 1	77: Substitution of C with A	1
Cluster 2	77: Substitution of C with A 87: Substitution of G with C	2
Cluster 3	38: Substitution of A with C 48: Insertion of A	2
Cluster 4	490: Substitution of C with A	1
Cluster 6	63: Substitution of C with T	2

Cluster 7	466: Substitution of T with C 29: Substitution of C with T 399: Substitution of T with C	2
Cluster 8	466: Substitution of T with C	1
Cluster 9	122, 164, 175, 391, 406, 450 and 587: Substitution of G with A 133: Substitution of G with C	8
Cluster 10	164, 172, 175, 266, 274, 344, 346, 376, 391, 401, 406, 410, 483, and 587: Substitution of G with A 189, 333, 452 and 486: Substitution of G with C	18

Table S3. *Aspergillus flavus* isolates with positions showing nucleotide substitutions, deletions and insertions on Calmodulin gene region

NCBI identity	Isolates	Nucleotide Position and Polymorphism Type	Total No. of SNPs
<i>A. flavus</i>	8, 76, 74	105, 256 and 532: Substitution of G with A 144: Substitution of A with G	4
<i>A. flavus</i>	73, 4, 44, 52, 6, 60, 62, 72, 225, 223, 22, 218, 216, 206, 199, 185, 179, 161, 160, 156, 152, 147, 137, 128, 120, 102, 104	222 and 533: Substitution of G with A 543: Substitution of A with T 557: Insertion of A	4
<i>A. flavus</i>	181, 107	16: Substitution of C with G 447: Substitution of G with A 30, 33, 222 and 530: Substitution of G with A 34: Insertion of G	2
<i>A. flavus</i>	165, 157	35: Substitution of C with T 541: Substitution of A with T 557: Insertion of A	8
<i>A. flavus</i>	42, 141, 167, 207, 36, 39	16: Substitution of C with G 222 and 531: Substitution of G with A 542: Substitution of A with T 557: Insertion of A	1
<i>A. flavus</i>	135	576: Substitution of A with C 508: Substitution of T with A 607: Insertion of A	5
<i>A. flavus</i>	56	2: Substitution of A with C 39, 255, 303: Substitution of G with A 144 and 424: Substitution of A with G 701: Substitution of T with A 672: Substitution of T with C 15: Substitution of C with T 2: Substitution of A with C	2
<i>A. minisclerotigenes</i>	145	39, 205 and 303: Substitution of G with A 144 and 424: Substitution of A with G 701: Substitution of T with A	9
<i>A. minisclerotigenes</i>	25	39 and 255: Substitution of G with A 144 and 424: Substitution of A with G 701: Substitution of T with A	7
<i>A. minisclerotigenes</i>	231	39 and 255: Substitution of G with A 144 and 424: Substitution of A with G	11

<i>A. minisclerotigenes</i>		701: Substitution of T with A 203 and 218: Substitution of C with T 243 and 466: Substitution of C with G 344 and 437: Substitution of G with T 144 and 424: Substitution of A with G	
<i>A. minisclerotigenes</i>	138, 64	255: Substitution of G with A 701: Substitution of T with A 466: Substitution of C with G	5
<i>A. minisclerotigenes</i>	88, 86, 85, 78	144 and 424: Substitution of A with G 255 and 691: Substitution of G with A 701: Substitution of T with A 466: Substitution of C with G	6

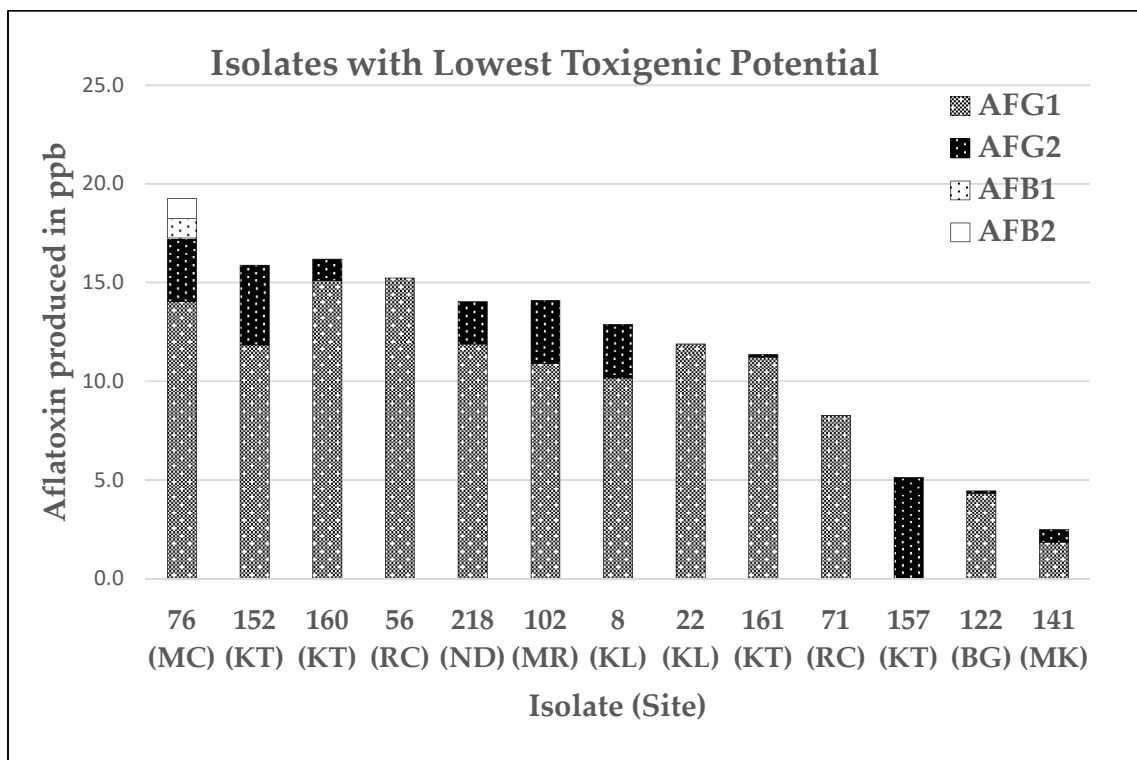


Figure S1. Aflatoxin types produced by low aflatoxigenic *Aspergillus flavus* isolates. RC=Rachuonyo, BG=Bungoma, KT=Kitale, ND=Nandi, MC Machakos, MK=Makueni, MR=Meru) and KL=Kilifi.

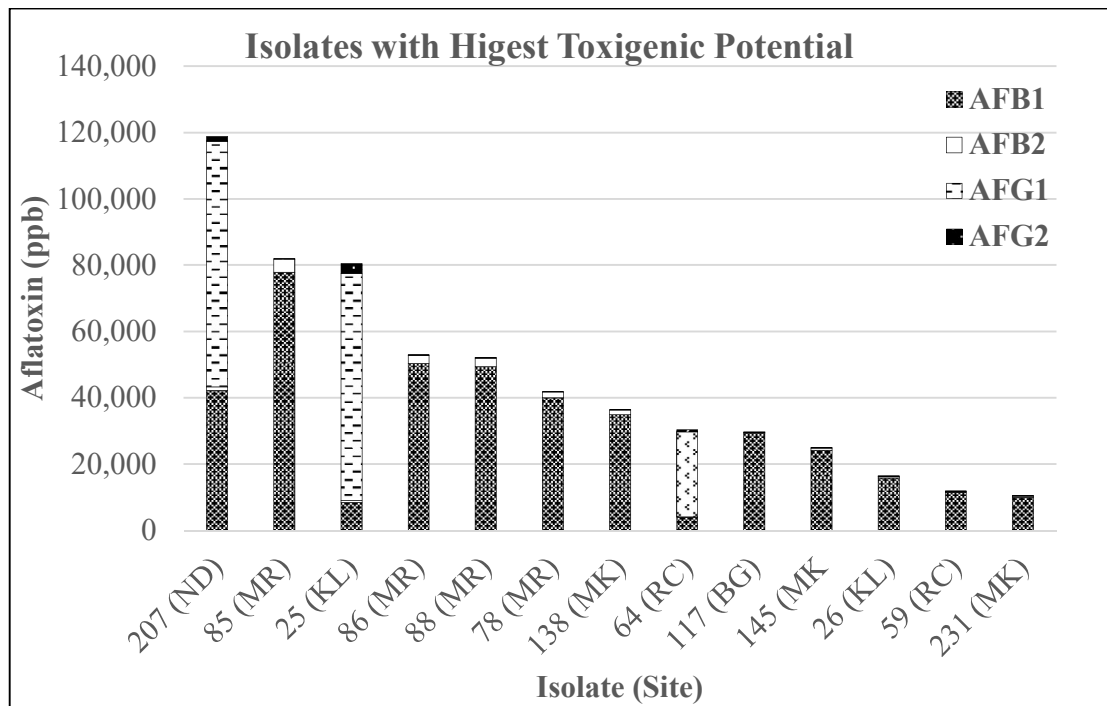


Figure S2. Aflatoxin types produced by high aflatoxigenic *Aspergillus spp.* isolates. RC=Rachuonyo, BG=Bungoma, KT=Kitale, ND=Nandi, MC Machakos, MK=Makueni, MR=Meru) and KL=Kilifi.

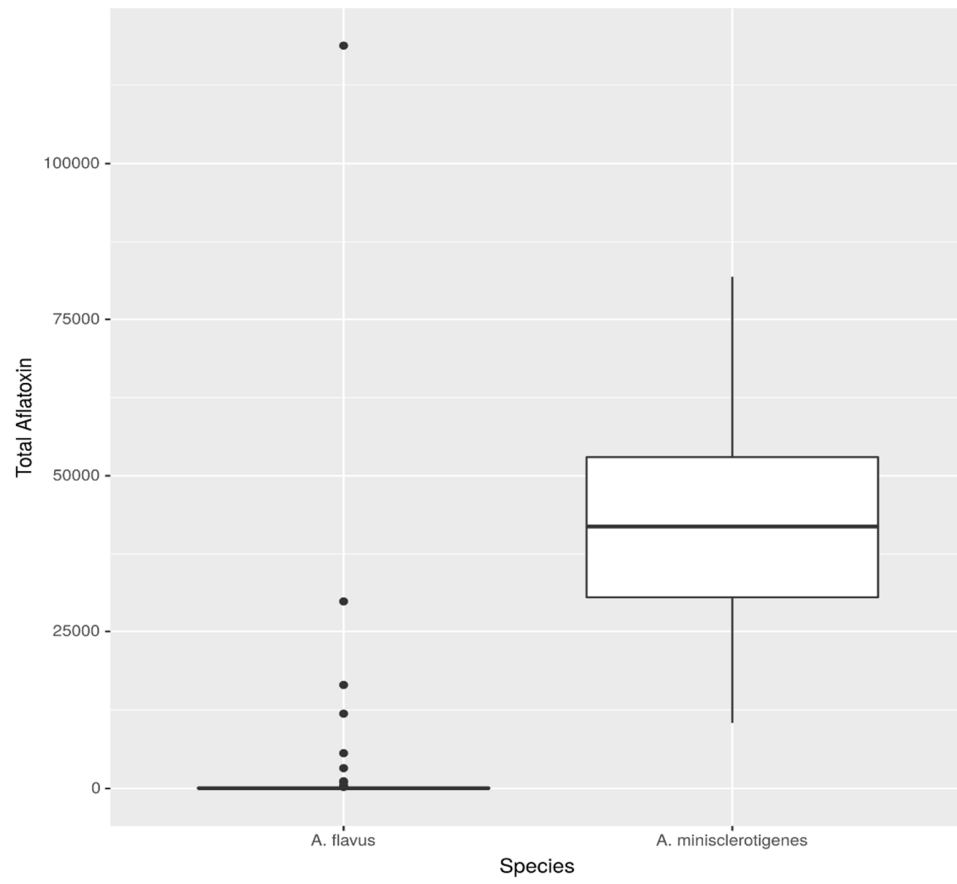


Figure S3. A boxplot showing the comparison of the total Aflatoxin production potential between *Aspergillus flavus* and *Aspergillus minisclerotigenes*

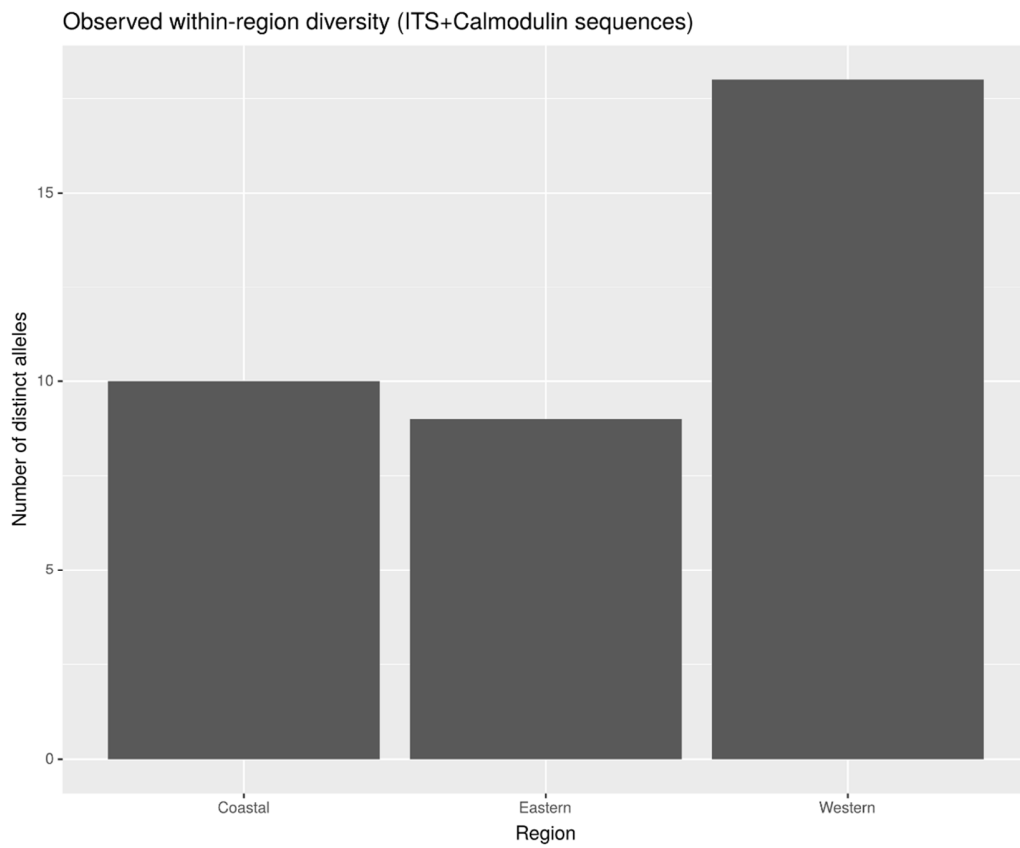


Figure S4. A graph of distinct alleles of *Aspergillus flavus* isolates observed in each of three region.

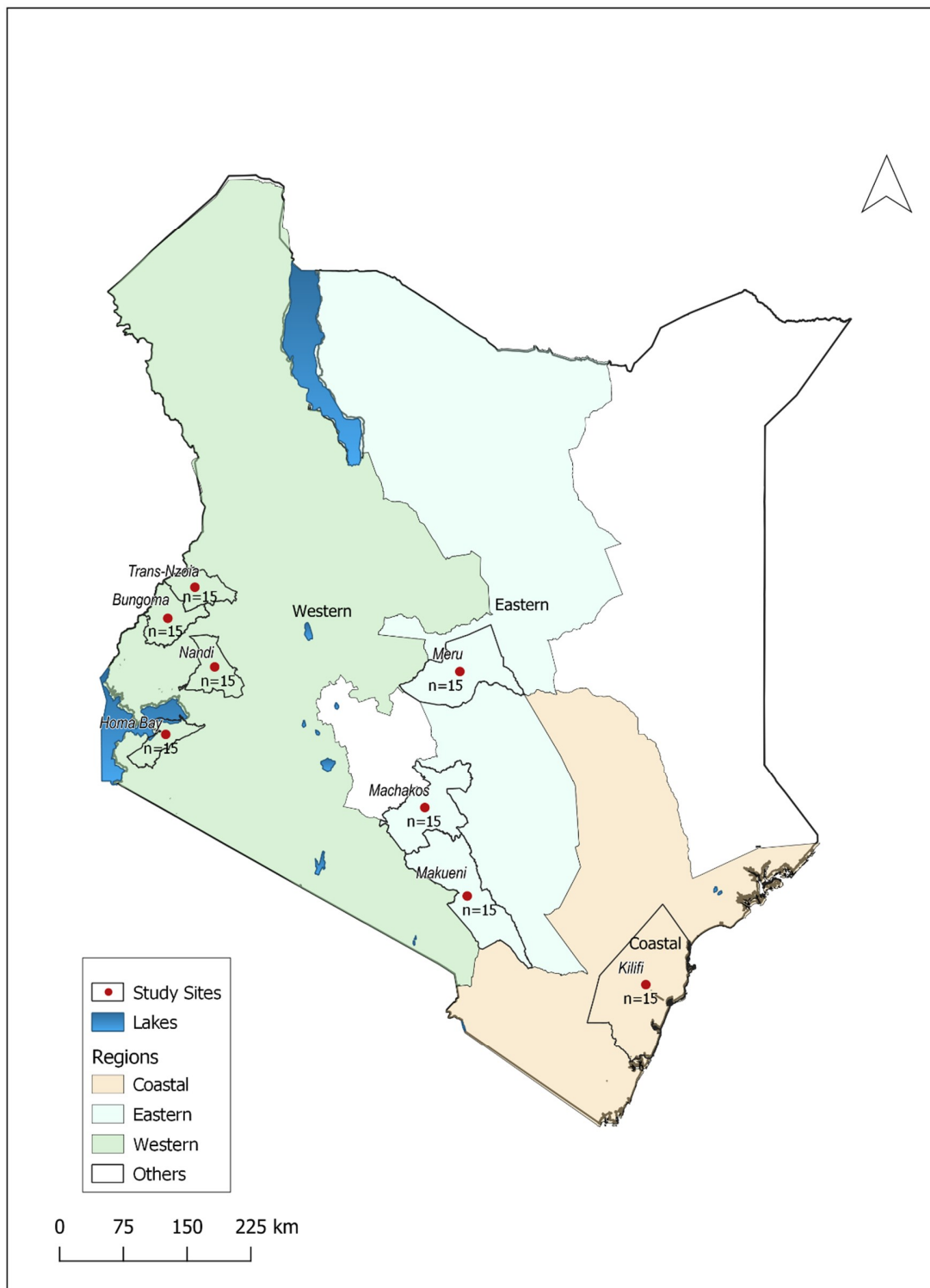


Figure S5. Map of Kenya showing the sampling sites (red dots) within the three geographical regions.