











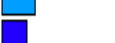









Motif	Symbol	Motif	Symbol	Motif	Consensus
1.		1.		LDPLMKPKQDRYALRTSPQWLG	PQIEVIRAATKSIEREINSVNDNPLIDV
2.		2.		RNPSLDYGFKGAEIAMASYCSELQFLGNPVTNHVQSAEQHNQDVNSLGLI	
3.		3.		SAVFCEVMNGKPEYTDHLTHKLNKHPGQIEAAAIMEHILEGSSYMKLAKK	
4.		4.		KALHGGNFQGTPIGVSMNTRLAIAAIGKLMFAQFSELVNDYYNGLPSN	
5.		5.		RINTLLQGYSGIRFEILEAIAKLLNANVTPCLPLRGTITASGDLVPLSYI	
6.		6.		SSDWVMBMNGTDSYGVTGFGATSHRRTKEGGALQRELIRFLNAGAFG	
7.		7.		CRSYPLYRFVRZELGAVYLTGEKTRSPGEELNKVLVAINQKGKIDPLLEC	
8.		8.		SSRKTAEAIDILKLSSTFLIALCQAVDLRHJEENVKSAVKSCVMTVAKK	
9.		9.		TGRENSVAVAPDGTKVNAAEAFKIAGIQGGFFELQPKEGLAMVNGTAVGS	
10.		10.		ADPLNWGKAAEELTGSHLDEVKRMVAEYRQPLVKIEGASLRIAQVA AVAA	
11.		11.		LHVARFCEKDLLTAIDREAVFAYADDPCSANYPLMKKLRAVLVEHALANG	
12.		12.		ETSVFAKVAZFEEELRAALPKEVEAARA AVENG TAP	
13.		13.		DGHVLP AEATRAAML	
14.		14.		KEWNGEPLPIC	
15.		15.		ARVELDESARGRVKA	
16.		16.		TVLFEANVLAILAEV	
17.		17.		MECENGRVAATNGDGLCMATP	
18.		18.		PNRITE	
19.		19.		TLSTNSTG	
20.		20.		AAEFDA	

**Supplementary Figure 1.** The sequence information of each motif presented in **Fig. 1C**.



Sobic.004G220500	SPQWLGFPQIEVIRAATKSIEREINSVNDNPLIDVARSKALHGGNFQGTPIGVSMNDTRLA	413
Sobic.004G220600	SPQWLGFPQIEVIRAATKSIEREINSVNDNPLIDVARSKALHGGNFQGTPIGVSMNDTRLA	413
Sobic.004G220700	SPQWLGFPQIEVIRAATKSIEREINSVNDNPLIDVARSKALHGGNFQGTPIGVSMNDTRLA	413
Sobic.004G220300	SPQWLGFPQIEVIRAATKSIEREVNSVNDNPVIDVHRGKALHGGNFQGTPIGVSMDNARLA	402
Sobic.006G148800	SPQWLGFPQIEVIRAATKSIEREVNSVNDNPVIDVHRGKALHGGNFQGTPIGVSMDNARLA :*****:*:* *****:*****:* * .*****:*****:***	402
Sobic.001G160500	VAAIGKLMFAQFTELVSSFYNSGLPSNLSSGRDPSLDYGFNGAEVAMASYCSELQFLANP	476
Sobic.006G148900	VAAIGKLMFAQFSELVNDFYNNGLPSNLSSGRNPSLDYGFNGAEIAMASYCSELQFLANP	473
Sobic.004G220400	LAAIGKLMFAQFSELVNDYNNGLPSNLSSGRNPSLDYGFNGAEIAMASYCSELQFLGNP	477
Sobic.004G220500	IAAIGKLMFAQFSELVNDYNNGLPSNLSSGRNPSLDYGFNGAEIAMASYCSELQFLGNP	473
Sobic.004G220600	IAAIGKLMFAQFSELVNDYNNGLPSNLSSGRNPSLDYGFNGAEIAMASYCSELQFLGNP	473
Sobic.004G220700	IAAIGKLMFAQFSELVNDYNNGLPSNLSSGRNPSLDYGFNGAEIAMASYCSELQFLGNP	473
Sobic.004G220300	IANIGKLMFAQFSELVNEFYNNGLTSLNLAGSRNPSLDYGFNGTEIAMASYCSELQYLGNP	462
Sobic.006G148800	IANIGKLMFAQFSELVNEFYNNGLTSLNLAGSRNPSLDYGFNGTEIAMASYCSELQYLANP :* *****:*** .:* .*** **:* .*:*****:*.*:*****:*.**	462
Sobic.001G160500	VTNHVQTAEQHNQSVNSLGLISSRMTAEAVTILKLSSTFLIALCQAVDLRQLEESIKAA	536
Sobic.006G148900	VTNHVQSAEQHNQDVNSLGLISSRKTAEAVDLKLSSTFLIALCQAVDLRHEENLKSA	533
Sobic.004G220400	VTNHVQSAEQHNQDVNSLGLISSRKTAEADILKLMSTFLIALCQAVDLRHEENVKAA	537
Sobic.004G220500	VTNHVQSAEQHNQDVNSLGLISSRKTAEAEIILKLSSTFLIALCQAVDLRHEENVKSA	533
Sobic.004G220600	VTNHVQSAEQHNQDVNSLGLISSRKTAEAEIILKLSSTFLIALCQAVDLRHEENVKSA	533
Sobic.004G220700	VTNHVQSAEQHNQDVNSLGLISSRKTAEAEIILKLSSTFLIALCQAVDLRHEENVKSA	533
Sobic.004G220300	ITNHVQSAEQHNQDVNSLGLVRSARKTAEADILKLSSTYIVALCQAVDLRHEENIKTS	522
Sobic.006G148800	ITNHVQSAEQHNQDVNSLGLVRSARKTAEAVDILKLSSTYIVALCQAVDLRHEENLKSA :****:*****.*****:* * *****: *****:*****:*****:***:*.**::	522
Sobic.001G160500	VKNCVARVAKKCLAMDDAAA----AAQLLGAVDRAVAVFTYAEPCRPSPPLMKQLRV	591
Sobic.006G148900	VKSCVTTVAKKTLSTSATGGLHNRARCEKDLLTAIDREAVFAYADDPSCSANYPLMQMRS	593
Sobic.004G220400	VKNCVTQVAKKSLSLNARGGLHNRARCEKDLLQTAIDREAVFAYADDPSPNYPLMQKLRA	597
Sobic.004G220500	VKSCVMTVAKKTLSTNSTGGLHVARFCEKDLLQEIIEAVFAYADDPSCSANYPLMKKLRN	593
Sobic.004G220600	VKSCVMTVAKKTLSTNSTGGLHVARFCEKDLLQEIIEAVFAYADDPSCSANYPLMKKLRN	593
Sobic.004G220700	VKSCVMTVAKKTLSTNSTGGLHVARFCEKDLLQEIIEAVFAYADDPSCSANYPLMKKLRN	593
Sobic.004G220300	VKNTVTQVAKKVLTMNPSGLDSSARFSEKELITAIIDREGVFTYADDPASASLPLMTKLRA	582
Sobic.006G148800	VKNCVMAAARKVLTSLDGLHSARFSEKALLTAIDREAVGYDDPSCSANSPLMKKIRA ** . * .*: * * : . . . * .: * .*: * .** . . *** **:	582
Sobic.001G160500	VLMEHALGAAEGAV-ETTSILAKVAEFEQQLRAVLPDEVEAARAAVESGTA--PKRIAEC	648
Sobic.006G148900	VLVEHALANGAEERDPETSVFAKVATFEELRAALPREVDAARAAVENGTAAPVNRIAEC	653
Sobic.004G220400	VLIEHALANGDAERVVETSI FAKVAEFEQVRAALPKEVEAARAAVESGNPLVPNRIKEC	657
Sobic.004G220500	VLVERALANGAAEFDAETSVFAKVAQFEELRAALPKAVEAARAAVENGTAAPVNRITEC	653
Sobic.004G220600	VLVERALANGAAEFDAETSVFAKVAQFEELRAALPKAVEAARAAVENGTAAPVNRITEC	653
Sobic.004G220700	VLVERALANGAAEFDAETSVFAKVAQFEELRAALPKAVEAARAAVENGTAAPVNRITEC	653
Sobic.004G220300	VLVDHALSSGDAERE--PSVFSKITKFEELRAVLPREVEAARVAEAGTAPVANRIADS	640
Sobic.006G148800	VLVDHALASGEAEKASASVFSKINRFEEALREALPREMEARVAFETGTAPIGNRIKDS *::*:** . . . *::*: ** : * ** :*:**.* . * .: ** :	642
Sobic.001G160500	RSYPLYRFVREELGAEYLTGEKTRSPEEEVVKVVIAMNQRKHIDPILLECLSDWKGAPLHA	708
Sobic.006G148900	RSYPLYRFVREELGTEYLTGEKTRSPEEEVNVKVFVAMNLGKHIDAVLECLKEWNGEPLPI	713
Sobic.004G220400	RSYPLYRFVREEVGTQYLTGEKTRSPEEELNKVLVAINQRKHVDPILLECLKEWNGEPLPL	717
Sobic.004G220500	RSYPLYRFVRQEVGAVYLTGEKTRSPEEELNKVLVAINQGHIDPILLECLKEWNGEPLPI	713
Sobic.004G220600	RSYPLYRFVRQEVGAVYLTGEKTRSPEEELNKVLVAINQGHIDPILLECLKEWNGEPLPI	713
Sobic.004G220700	RSYPLYRFVRQEVGAVYLTGEKTRSPEEELNKVLVAINQGHIDPILLECLKEWNGEPLPI	713
Sobic.004G220300	RSFPLYRFVREELGCVFLTGEKLSPEEECTKVFNQINQGLVDPMLECLKEWDGKPLPI	700
Sobic.006G148800	RSYPLYRFIRQDLGAVYLTGEKLSPEEELNKVFLALSEGKLDIPMLECLKEWDGKPLPI **:*:*:*:*:*: * :***** :***** ** . :. * : * :*****:*.** **	702
Sobic.001G160500	T*--- 709	
Sobic.006G148900	C*--- 714	
Sobic.004G220400	C*--- 718	
Sobic.004G220500	C*--- 714	
Sobic.004G220600	C*--- 714	
Sobic.004G220700	C*--- 714	
Sobic.004G220300	NVVN* 704	
Sobic.006G148800	C*--- 703	

**Supplementary Table S2.** List of *cis*-elements identified in promoter region of PAL genes in sorghum

<i>Cis</i> -elements	SbPAL1	SbPAL2	SbPAL3	SbPAL4	SbPAL5	SbPAL6	SbPAL7	SbPAL8
3-AF1 binding site	0	0	1	1	0	0	0	0
A-box	2	1	0	0	2	0	1	1
AAGAA-motif	0	1	1	1	2	2	1	0
ABRE	2	10	1	1	5	2	5	8
ABRE3a	1	1	0	0	2	0	1	1
ABRE4	1	1	0	0	0	0	1	1
AC-I	0	1	0	0	0	0	3	2
AC-II	0	1	0	0	2	0	1	2
ACE	0	1	0	0	0	0	0	1
AE-box	0	1	0	0	1	0	0	0
ATC-motif	0	1	0	0	0	0	0	0
ARE	2	0	4	1	0	0	7	2
AT~ABRE	0	0	0	0	0	0	0	1
AT1-motif	0	0	1	1	0	0	0	0
AT~TATA-box	1		2	2	2	3	1	0
AuxRE	0	0	0	0	0	0	0	1
Box 4	0	0	1	1	0	0	4	0
CAAT-box	28	16	26	26	18	41	26	40
CARE	0	0	0	0	0	0	1	0
CAT-box	1	3	1	1	1	0	3	0
CCAAT-box	0	0	1	1	0	1	1	0
CCGTCC motif	2	1	0	0	2	0	1	1
CCGTCC-box	1	1	0	0	2	0	1	1
CGTCA-motif	3	2	0	0	3	0	2	0
DRE core	1	1	0	0	1	2	0	1
DRE1	1	1	1	1	0	0	0	0
ERE	0	1	1	1	1	1	0	0
F-box	1	0	0	0	0	0	3	0
G-Box	0	0	0	0	1	0	1	0
G-box	3	8	1	1	3	1	0	4
GARE-motif	1	0	2	2	0	0	1	0
GATA-motif	0	0	0	0	0	2	1	0
GC-motif	2	2	0	0	3	2	1	1
GC-repeat	0	1	0	0	0	0	0	0
GT1-motif	1	0	0	0	2	1	0	3
HD-Zip 1	1	0	0	0	0	0	0	0

I-box	0	0	0	0	2	0	0	0
LAMP-element	1	0	1	1	0	0	0	0
LTR	1	0	2	2	0	0	0	1
MBS	1	0	0	0	0	1	1	1
MRE	0	0	0	0	1	0	0	0
MSA-like	1	0	1	1	0	0	0	0
MYB	6	3	4	4	4	4	3	5
MYC	4	1	5	5	5	1	2	3
Myb	1	0	0	0	0	1	0	2
Myb-binding site	2	2	2	2	2	0	0	0
MYB recognition site	0	0	1	0	0	1	1	0
MYB-like sequence	0	0	0	0	0	2	1	2
Myc	1	0	0	0	0	0	0	0
O2-site	0	2	1	1	1	2	2	0
OCT	1	0	0	0	0	0	0	0
P-box	0	2	1	1	0	0	0	0
RY-element	0	0	0	0	0	4	0	0
STRE	2	3	1	1	5	2	1	6
Spl	4	4	1	1	4	0	1	1
TATA	0	0	0	0	1	0	0	0
TATA-box	18	13	14	14	16	17	15	19
TATC-box	1	0	0	0	0	0	0	1
TC-rich repeats	1	0	0	0	0	0	0	0
TCA	0	0	1	1	0	0	0	0
TCCC-motif	0	0	0	0	0	1	2	1
TCT-motif	2	1	1	1	0	0	0	0
TGA-element	0	0	1	1	1	1	1	1
TGACG-motif	3	2	0	0	3	1	2	0
W box	0	1	0	0	2	0	0	2
WRE3	3	1	1	1	1	1	3	3
WUN-motif	0	0	0	0	0	0	1	0
as-1	3	2	0	0	3	1	2	0
chs-CMA2b	0	1	0	0	0	0	0	1
motif I	0	0	0	0	1	0	0	0
box S	0	0	0	0	1	0	0	0
dOCT	0	0	0	0	0	0	0	2

**Supplementary Table S3.** Primer information used in this experiment

<b>Gene I.D.</b>	<b>Gene name</b>	<b>Primer name</b>	<b>Primer sequence (3'-5')</b>
Sobic.004G220300	SbPAL1	PAL1-F	GCCCTCCGTGTTCTCCAAGATCAC
		PAL1-R	TTCGCCACGGGGGCGGTGCCCTC
Sobic.004G220400	SbPAL2	PAL2-F	CTCCATTGGTGTGTCCAT
		PAL2-R	AAGGCCGTTGTTGTAGTAGTC
Sobic.004G220500	SbPAL3	PAL3-F	GGTGCTCGTTGCCATCA
		PAL3-R	TCTCTCTCTATCCGCTTCTC
Sobic.004G220700	SbPAL5	PAL5-F	GGTGCTCGTTGCCATCA
		PAL5-F	ACAGTCTTCTGCTCCTTGTATTT
Sobic.001G160500	SbPAL6	PAL6-F	GAAGTCATGTCCTCCACTTT
		PAL6-F	CGTCCATGGCCAGACATT
Sobic. 006G148800	SbPAL7	PAL7-F	AGGCCGAGAAGGACGCCAGCGCG
		PAL7-R	TTAGCAGATGGGCAGGGGCTTGC
Sobic.006G148900	SbPAL8	PAL8-F	GTGTTCTGCGAGGTGATGAA
		PAL8-R	CTTCTTCGCGAGCATCATGTA
Sobic.002g350400	Tubulin	Tub-F	GAGGTGACGATGCTTTCAACAC
		Tub-R	CACAGGTCAACAATCTCCTTGC