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www.bioinformation.net **Hypothesis**

Supplementary material

$$P(S) = F * T \quad \rightarrow \quad (1)$$

where P(S) – Probability of consensus
F – frequency (i.e. No: of particular nucleotide/ Total no in column)
T – transition probability

Log odd-score for consensus

$$(S) = \log P(S) - L\,(AT) \log 0.375 + L(GC) \log 0.125 \quad \rightarrow \quad (2)$$

$$\text{Coverage} = \frac{TP}{\text{Total Number of hits}} \quad \rightarrow \quad (3)$$

TP = Hits acquired which is equal to experimental validation + greater than threshold value of the dataset.
Total number of hits = Total number of hits acquired which is equal to experimental validation.

$$\text{Sensitivity} = \frac{TP}{TP + FN} \quad \rightarrow \quad (4)$$

TP = True Positive
FN = False Negative (total hits occurring below threshold value)

$$\text{Specificity} = \frac{TP}{TP + FP} \quad \rightarrow \quad (5)$$

TP = True Positive
FP = False Positive (total hits occurring above threshold value)

$$Z\text{-Score} = \frac{\text{Score - Mean}}{\text{Standard Deviation}} \quad \rightarrow \quad (6)$$

Z – Z-score
score – HMM score of the acquired hit
mean – average of all possible sliding windows of upstream of stress gene
std deviation – Standard Deviation of all possible sliding windows of upstream of stress gene.

Normalization score

$$\text{The normalization formula is} = \frac{\dfrac{\text{Top 1st rank of z-score of binding site for that TFBS and that stress gene}}{\text{Total No: of binding sites for that TFBS}}}{\dfrac{\text{Total no: of binding sites for all TFBS library and stress gene}}{\text{Total no: of binding for all TFBS library and of all stress genes}}} \quad \rightarrow \quad (7)$$

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Tables

S. No	Family name	Sub-family	Stress signal	Reference (Stress signal)	Name of the Cis-element	Cis-element	Reference (Cis-element)
1	ABI3/ VP1		ABA	Plant J. 2000; 24(1):57-66	distB ABRE	GCCACTTGTC	Plant J. 2000; 24(1):57-66
2	AP2/ EREBP	EREBP-ERF	Cold, Drought	The Plant Cell, 1998; 10:1391–1406.	GCC-box	GCCGCC	The Plant Cell, 1998; 10: 1391–1406.
		DREB	Cold, Drought	Proc. Natl. Acad. Sci., 1997; 94:1035-1040	CRT/DRE	(A/G)CCGAC	Proc. Natl. Acad. Sci., 1997, 94:1035-1040
3	ARF		Auxin	PNAS, 1999; 96(10): 5844-9	AuxREs	TGTCTC	PNAS, 1999; 96(10): 5844-9
4	BHLH/ myc		NACL, ABA, Drought	The Plant Cell, 2003; 15: 63–78	N box	CACG(G/A)C	The Plant Cell, 2003; 15: 63–78
					G box	CACGTG	The Plant Cell, 2003; 15: 1749–1770
5	bZIP		ABA, Drought	Current Opinion in Plant Biology 2000; 3:217–223	G box1	CCACGTGG	The Plant Cell, 1992; 4: 1309-1319
					G box2	TGACG(T/C)	The Plant Cell, 1992; 4: 1309-1319
					G/ABRE	(C/T)ACGTGGC	Journal Of Biological Chemistry, 2000; 275(3): 1723–1730
					C/ABRE	CGCGTG	Journal Of Biological Chemistry, 2000; 275(3): 1723–1730
6	HB		ABA, Drought	*Plant Molecular Biology,* 1998; **37:** 377–384.		CAATNATTG	Nat. Struct Biol, 1999; 6:464-470
7	HSF		Drought, Cold, Heavy-metal stress and oxidative stress	Plant Physiol. 1998; 117: 1135–1141	HSE	TTCNNGAA GAANNTTC	Nat. Struct Biol, 1999; 6:464-470
8	MYB		Dehydration, Wounding	The Plant Cell, 1993; 5:1529-1539		(T/C)AAC(G/T) G	*Genes & Dev.* 1990; 4: 2235-2241
						CC(T/A)ACC	Genetics, 1998; 149: 479–490.
						TAACTG	Plant Journal,1996; 10(6): 1145-1148
						CC(TA)AACC	Genetics, 1998; 149: 479–490.
						(C/T)AACN(A/G)	The Plant Journal, 2003; 33: 259–270
9	NAC		Drought, high salinity and ABA	The Plant Cell, 2004; 16: 2481–2498.		CATGTG	Plant Mol Biol. 2002; 50(2):237-48.
10	WRKY		Biotic stress (pathogen attack) Abiotic Stress (wind, rain, hail)	*Plant Physiology*, 2002, 129: 661–677	W box	(T)TGAC(C/T)	***Plant Molecular Biology* 51: 21–37, 2003.**

Table 1: Abiotic stress responsive transcription factor families.

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