

Supplementary Materials

Catalytic Efficiency of Basidiomycete Laccases: Redox Potential versus Substrate-Binding Pocket Structure

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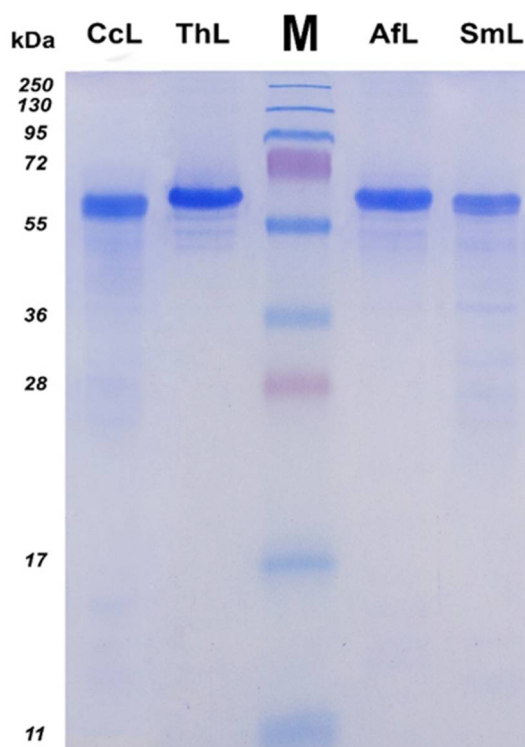


Figure S1. SDS-PAGE electrophoresis of the purified laccases.

Table S1. Specific activity of laccases, $\mu\text{M}\cdot\mu\text{g}^{-1}\cdot\text{min}^{-1}$.

Substrate	Laccase			
	ThL	CcL	AfL	SmL
p-coumaric acid	2717	2038	289	293
o-coumaric acid	336	272	49	42
m-coumaric acid	4	2	0	0
caffeic acid	64037	36937	39814	15499
3,4-dihydroxybenzoic acid	16785	9291	17620	3797
syringic acid	38859	30819	19653	7504
vanillic acid	3485	1727	0	914
orcinol	3829	1249	317	100
hydroquinone	159163	146611	94895	25255
eugenol	165391	152348	98609	26243
vanillin	452	412	0	30
2,5-xylidine	56	471	0	0
2-amino-4-methoxybenzoic acid	17	17	16	8
catechol	287619	256190	286667	347619
2,6-DMP	121905	115238	125714	116190
gallic acid	55238	52381	60000	45714
ferulic acid	257143	222857	203810	242857
sinapic acid	308571	301905	339048	385714
guaiacol	154286	157143	169524	215238
syringaldazine	124762	116190	172381	170476
congo red	550	156	32	28
indigo carmine	257	166	37	19
brom	6600	7200	3000	1400
phenol red	1111	1333	488	201

Table S2. ClustalW alignment of the potential laccase substrate-binding region near T1 cooper center. The amino acid residues are numbered according to the *T. hirsuta* laccase. The amino acid residues delineating the substrate-binding cavity* are highlighted in bold.

Loop of the substrate-binding pocket	E ⁰ , mV	Amino acid residue no					
		158-169	204-209	263-267	330-339	386-394	454-463
		S1	S2	S3	S4	S5	S6
ThL	790	KLGP-RFPLGAD	SCDPN	PNFG-N	FNFNNGSNFFI	ATAAAPGAP	HIDFHLEGGF
CcL	780	KVGP-AVP-TAD	SCDPN	PNSG-T	FGFAGGRFTI	ATAAAPGFP	HIDFHLEGGF
AfL	620	RQEP-PGPVTPD	SCEPN	PNDAAD	FSFNGTNEFQV	GG--VVGGG	HIDWHLDLGF
SmL	650	QQEPIGAAITAD	SCDPN	PNSG-G	LAFANGRFSI	AG--AAGGP	HIDWHLEAGF

*according to the structures of complexes of laccases with a substrate or a substrate-like inhibitor [1,2].

References

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2. I. Matera, A. Gulotto, S. Tilli, M. Ferraroni, A. Scozzafava, F. Briganti, Crystal structure of the blue multicopper oxidase from the white-rot fungus *Trametes trogii* complexed with p-toluate, *Inorganica Chim. Acta*. 361 (2008) 4129–4137. doi:10.1016/j.ica.2008.03.091.