Supplementary data for the article:

Loncar, N.; Bozic, N.; Vujcic, Z. Expression and Characterization of a Thermostable Organic Solvent-Tolerant Laccase from Bacillus Licheniformis ATCC 9945a. *J. Mol. Catal. B-Enzym.* **2016**, *134*, 390–395. https://doi.org/10.1016/j.molcatb.2016.06.005

Supplementary Material

Expression and characterization of a thermostable organic-tolerant laccase from *Bacillus licheniformis* ATCC 9945a

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Keywords: Laccase, *Bacillus licheniformis*, oxidation, thermostable enzyme, lignin.

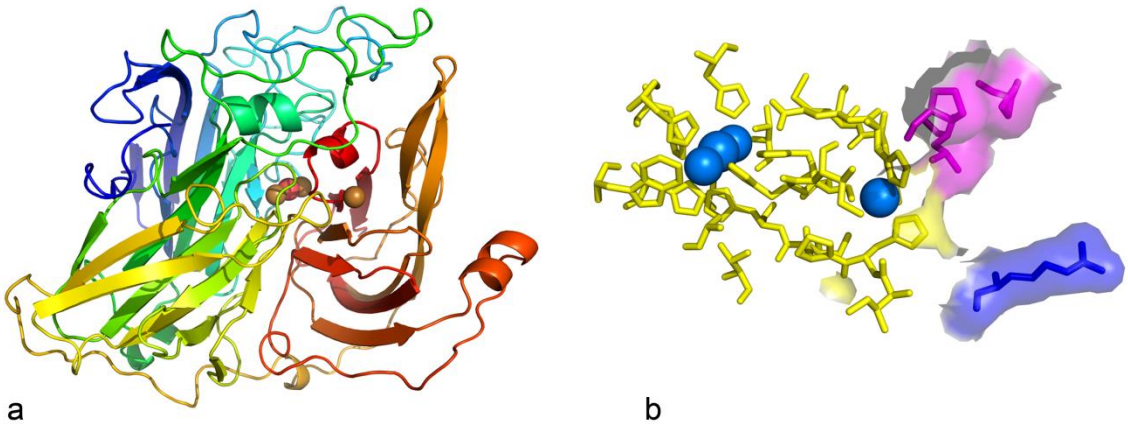


Fig. S1 Homology model of *B. licheniformis* 9945a laccase: (A) and representation of active site showing blue copper center T1 and trinuclear centre (B). Surface representation outlines Arg415 and hydrophobic substrate binding site.

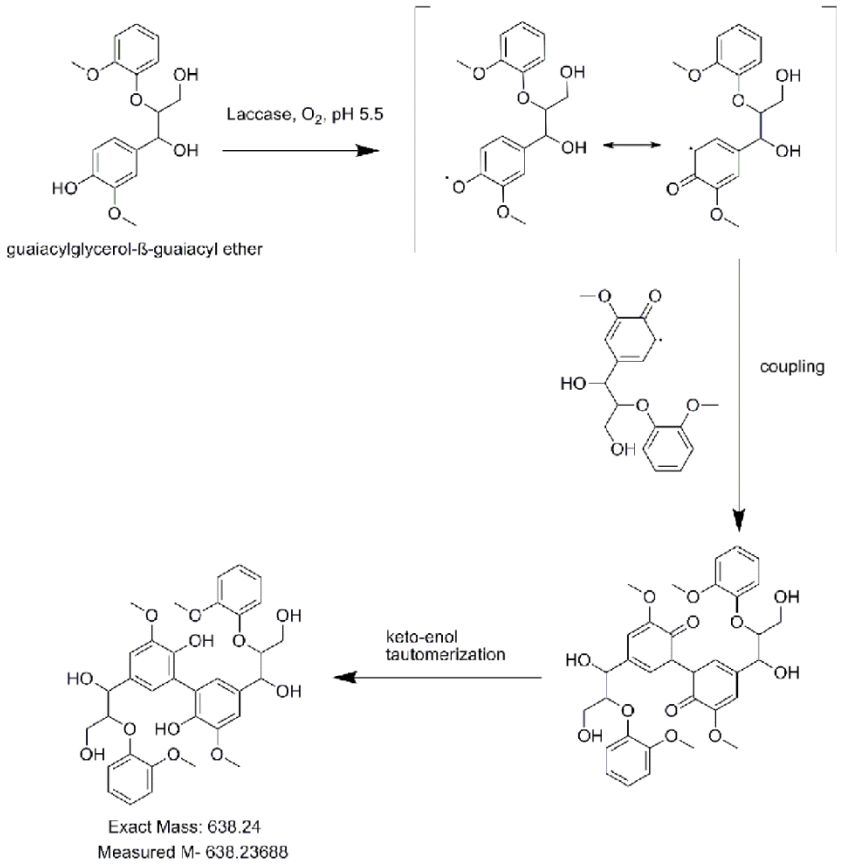


Fig. S2 Proposed mechanism for C-C bond formation in lignin model dimer upon oxidation by *Bli*Lacc.

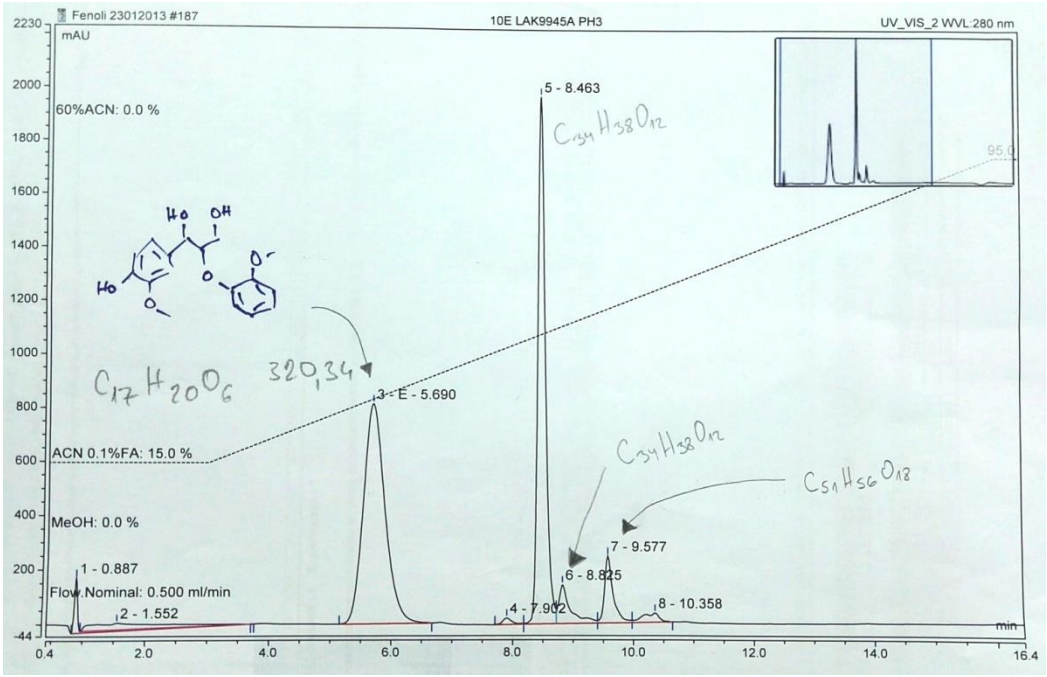
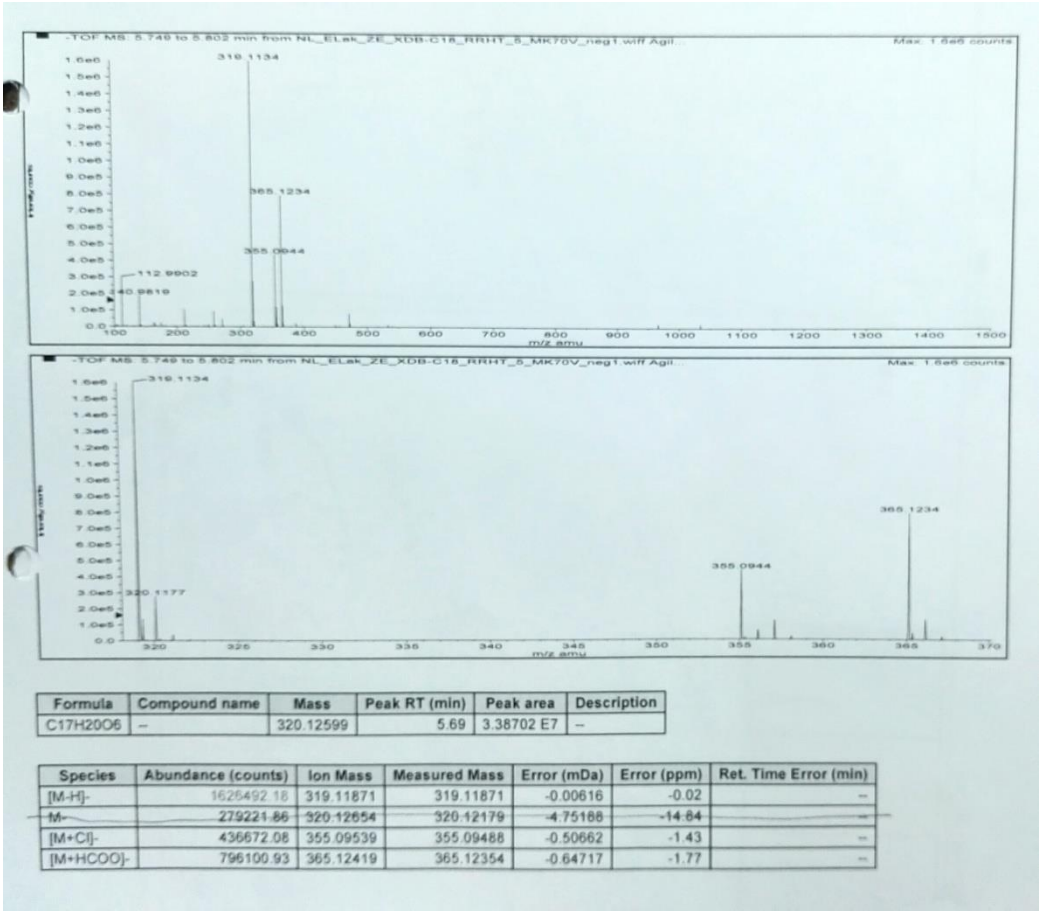


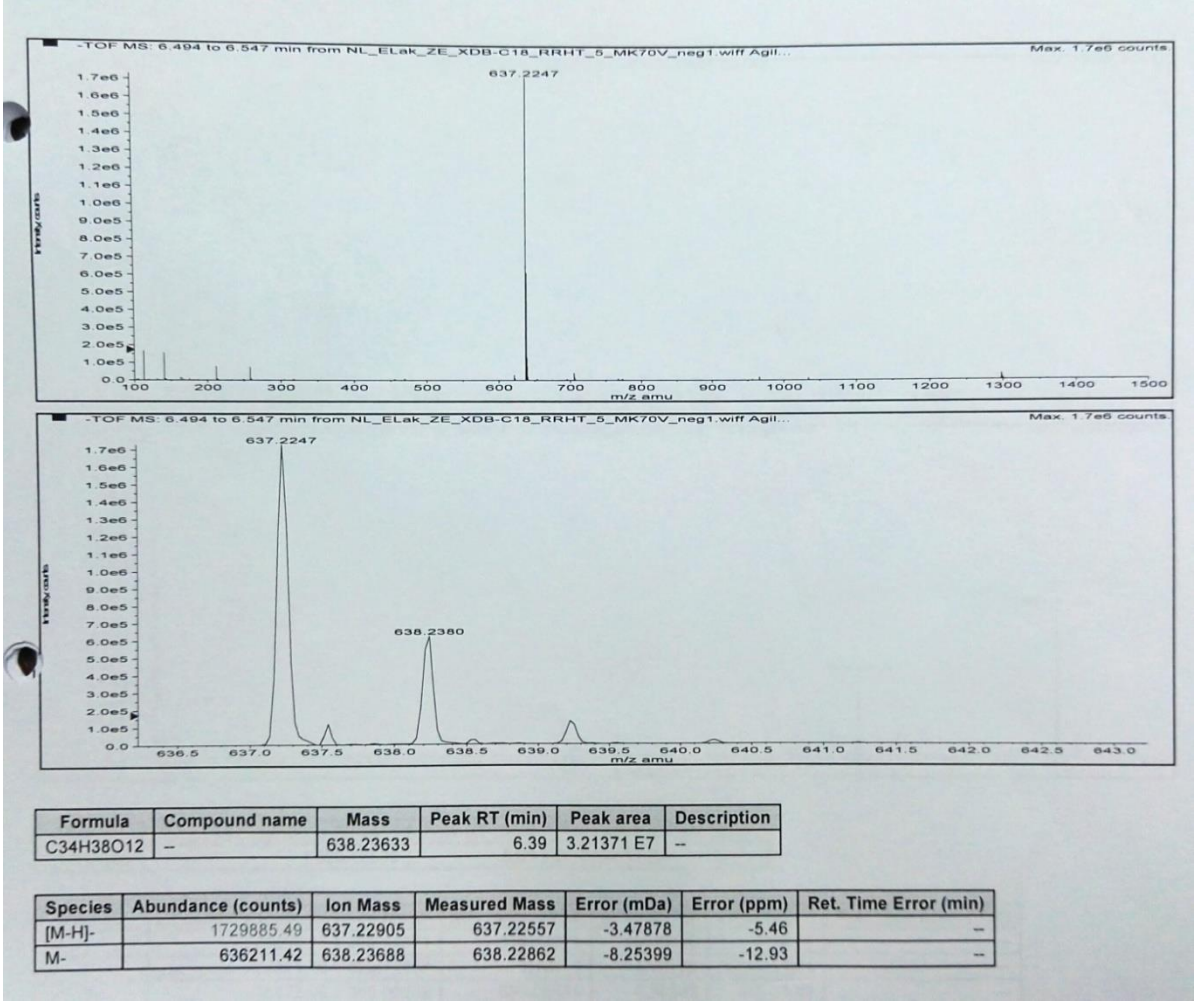
Fig. S3.1 Chromatogram of *Bli*Lacc reaction with guaiacylglycerol-β-guaiacyl ether:



Formula	Compound name	Mass	Peak RT (min)	Peak area	Description
C17H20O6	--	320.12599	5.69	3.38702 E7	--

Species	Abundance (counts)	Ion Mass	Measured Mass	Error (mDa)	Error (ppm)	Ret. Time Error (min)
[M-H]-	1626492.18	319.11871	319.11871	-0.00616	-0.02	--
M-	279221.86	320.12654	320.12179	-4.75188	-14.84	--
[M+Cl]-	436672.08	355.09539	355.09488	-0.50662	-1.43	--
[M+HCOO]-	796100.93	365.12419	365.12354	-0.64717	-1.77	--

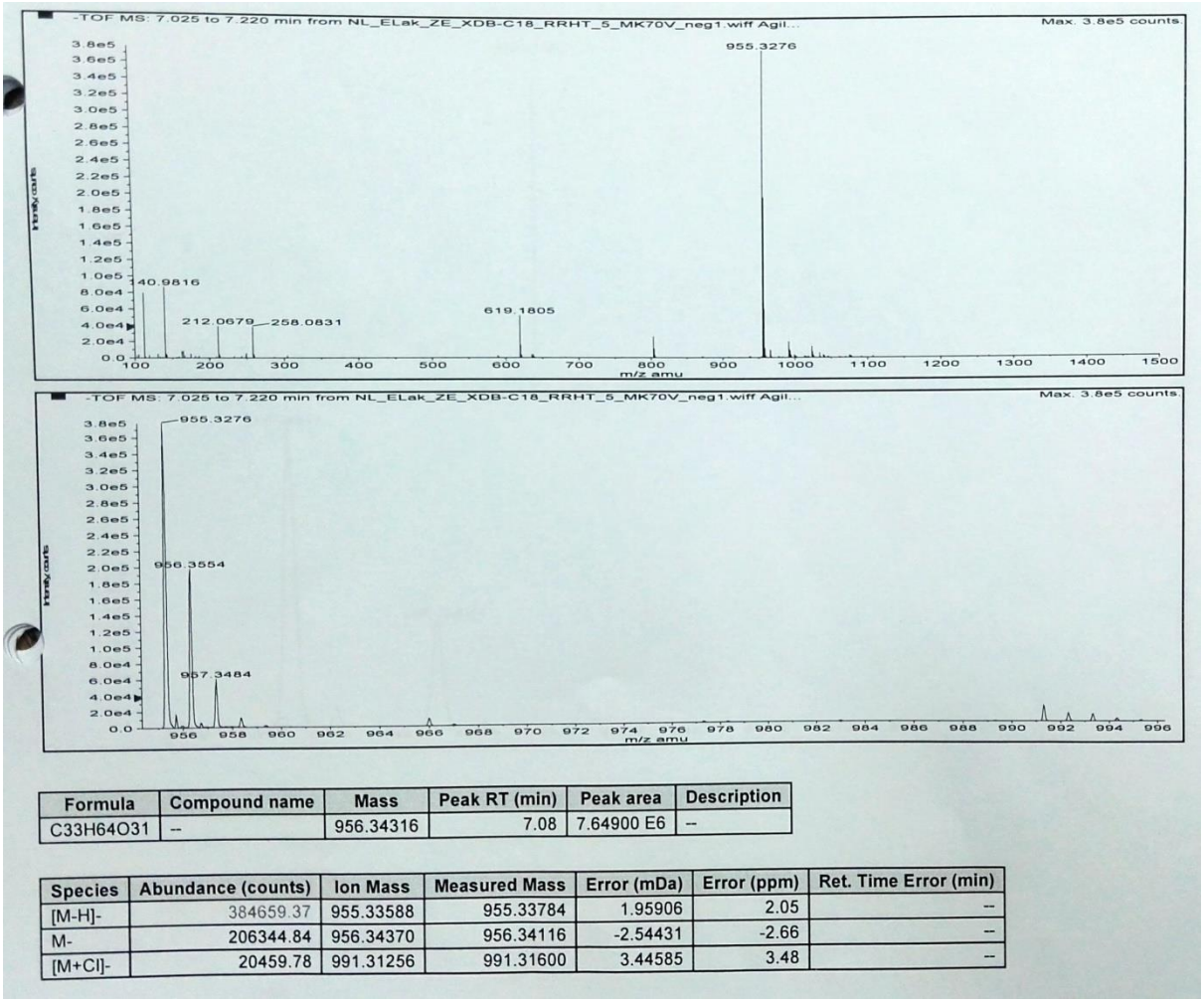
Fig. S3.2 LC-MS analysis of guaiacylglycerol-β-guaiacyl ether.



Formula	Compound name	Mass	Peak RT (min)	Peak area	Description
C34H38O12	--	638.23633	6.39	3.21371 E7	--

Species	Abundance (counts)	Ion Mass	Measured Mass	Error (mDa)	Error (ppm)	Ret. Time Error (min)
[M-H]-	1729885.49	637.22905	637.22557	-3.47878	-5.46	--
M-	636211.42	638.23688	638.22862	-8.25399	-12.93	--

Fig. S3.3 LC-MS analysis of product 1 obtained by reaction of *Bli*Lacc with guaiacylglycerol-β-guaiacyl ether.



Formula	Compound name	Mass	Peak RT (min)	Peak area	Description
C33H64O31	--	956.34316	7.08	7.64900 E6	--

Species	Abundance (counts)	Ion Mass	Measured Mass	Error (mDa)	Error (ppm)	Ret. Time Error (min)
[M-H]-	384659.37	955.33588	955.33784	1.95906	2.05	--
M-	206344.84	956.34370	956.34116	-2.54431	-2.66	--
[M+Cl]-	20459.78	991.31256	991.31600	3.44585	3.48	--

Fig. S3.4 LC-MS analysis of product 2 obtained by reaction of *Bli*Lacc with guaiacylglycerol-β-guaiacyl ether.