Electronic supplementary information (ESI):

Reducing sugars facilitated carbonyl condensation in detoxification of carbonyl aldehyde model compounds for bioethanol fermentation

Rui Xie[a], Maobing Tu*[a] , Yonnie Wu[b] , Steven Taylor[c]

[a]Forest Products Lab and Center for Bioenergy and Bioproducts, Auburn University, 520 Devall Drive, Auburn, AL, 36849, U.S.

[b]Department of Chemistry and Biochemistry, Auburn University, 172 Chemistry building, Auburn, AL, 36849, U.S.

[c]Department of Biosystems Engineering, Auburn University, Auburn, AL, 36849, U.S.

* Corresponding author

Email address: mtu@auburn.edu

Fax: +1 334 844 1084; Tel: +1 334 844 8829

Table S1 Colony Forming Units (CFU) of *Saccharomyces cerevisiae* on YDP agar plates (in the presence of 0 mM (M9 control), 0.02 mM, 0.1 mM, 0.5mM and 1.0 mM Ortho-phthalaldehyde at 30°C)

Incubation time	M9 ($\times 10^5$)	0.02mM ($\times 10^5$)	0.1mM ($\times 10^5$)	0.5mM ($\times 10^5$)	1mM ($\times 10^5$)
0 h	157	151	19	0	0
12 h	730	510	4.0	0	0
24 h	1070	1470	8.1	0	0
48 h	4000	1400	206	0.2	0

Table S2 The change of pH during the alkaline treatment of 1.0 mM OPA with different sugars (2h, 60°C)

Samples	Initial	pH adjusting[a]	30 min	pH adjusting	60 min	pH adjusting	90 min	pH adjusting	120 min
Glu/OPA	6.3	10.0	9.0	10.1	9.5	10.2	9.5	10.2	9.7
Fru/OPA	6.4	9.9	8.2	9.9	8.2	9.9	8.1	10	8.7
Suc/OPA	6.3	10.5	10.4	10.9	10.8	11.1	10.9	11.1	11

a: NaOH was added at the same level in each treatment to avoid the effect of salts on fermentation