Electronic Supplementary Material (ESI) for Green Chemistry

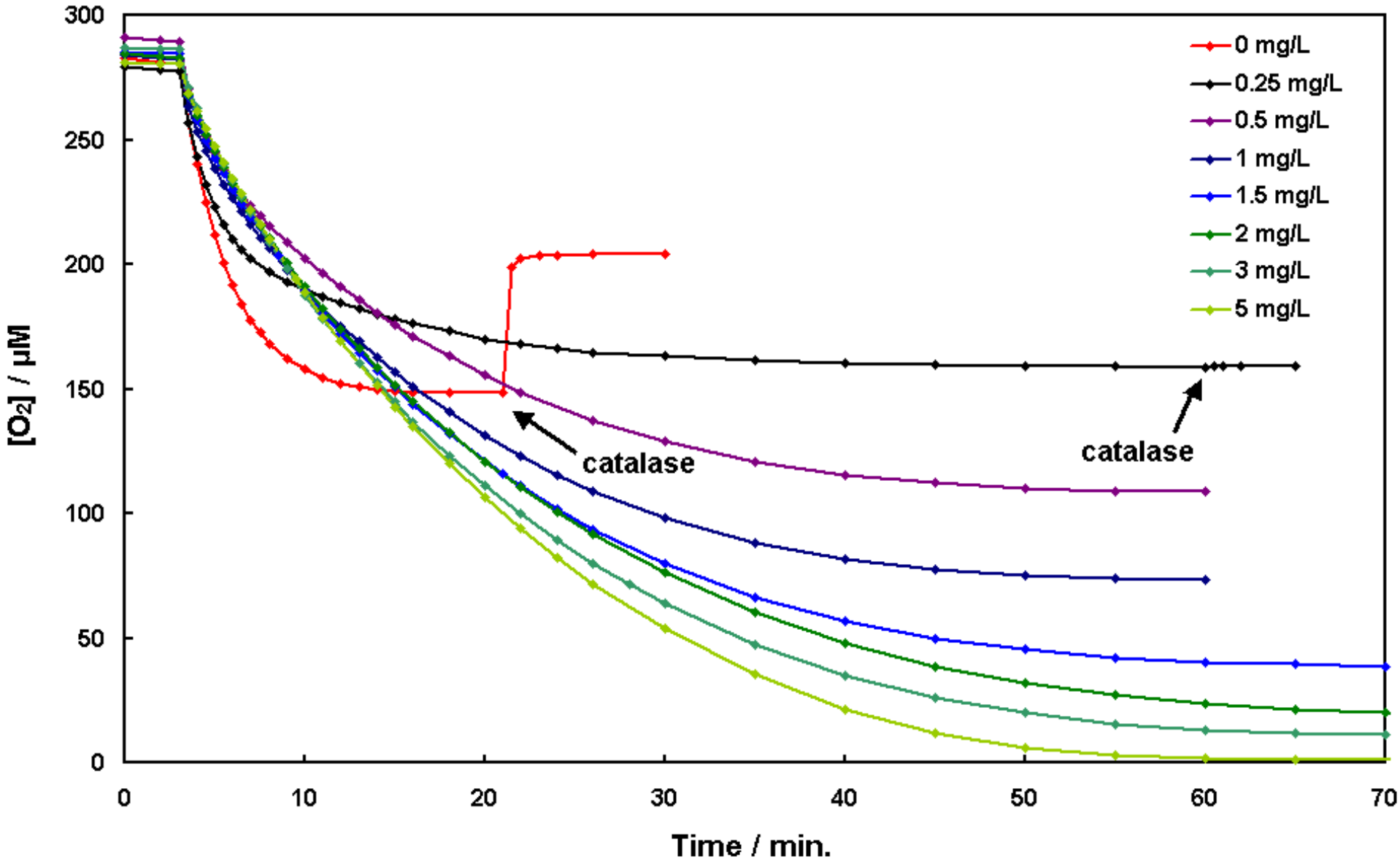
Natural polyphenols as safe alternatives to hydroquinone for the organocatalyzed reduction of dioxygen dissolved in water by diethylhydroxylamine (DEHA)

Raphaël LEBEUF,[a] Ying ZHU,[a] Véronique NARDELLO-RATAJ,[a] Jean-Pierre LALLIER,[b] Jean-Marie AUBRY*[a]

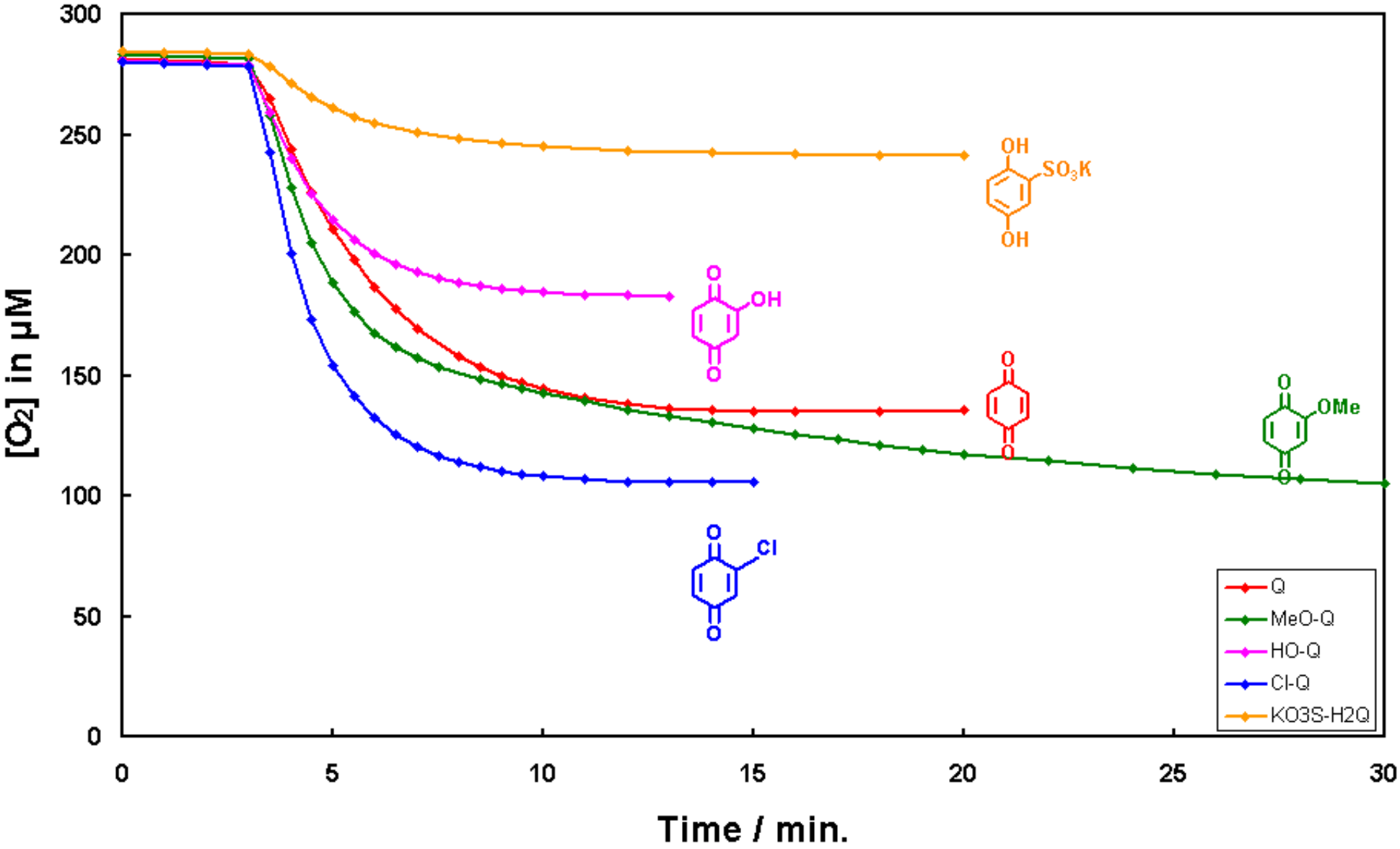
[a] Université Lille Nord de France, USTL and ENSCL, E.A. 4478 Chimie Moléculaire et Formulation, Cité Scientifique – BP 90108, 59652 Villeneuve d'Ascq Cedex - France.
[b] Arkema, CRRA, Rue Henri Moissan - BP 63, 69493 Pierre-Bénite Cedex – France

SUPPORTING INFORMATION

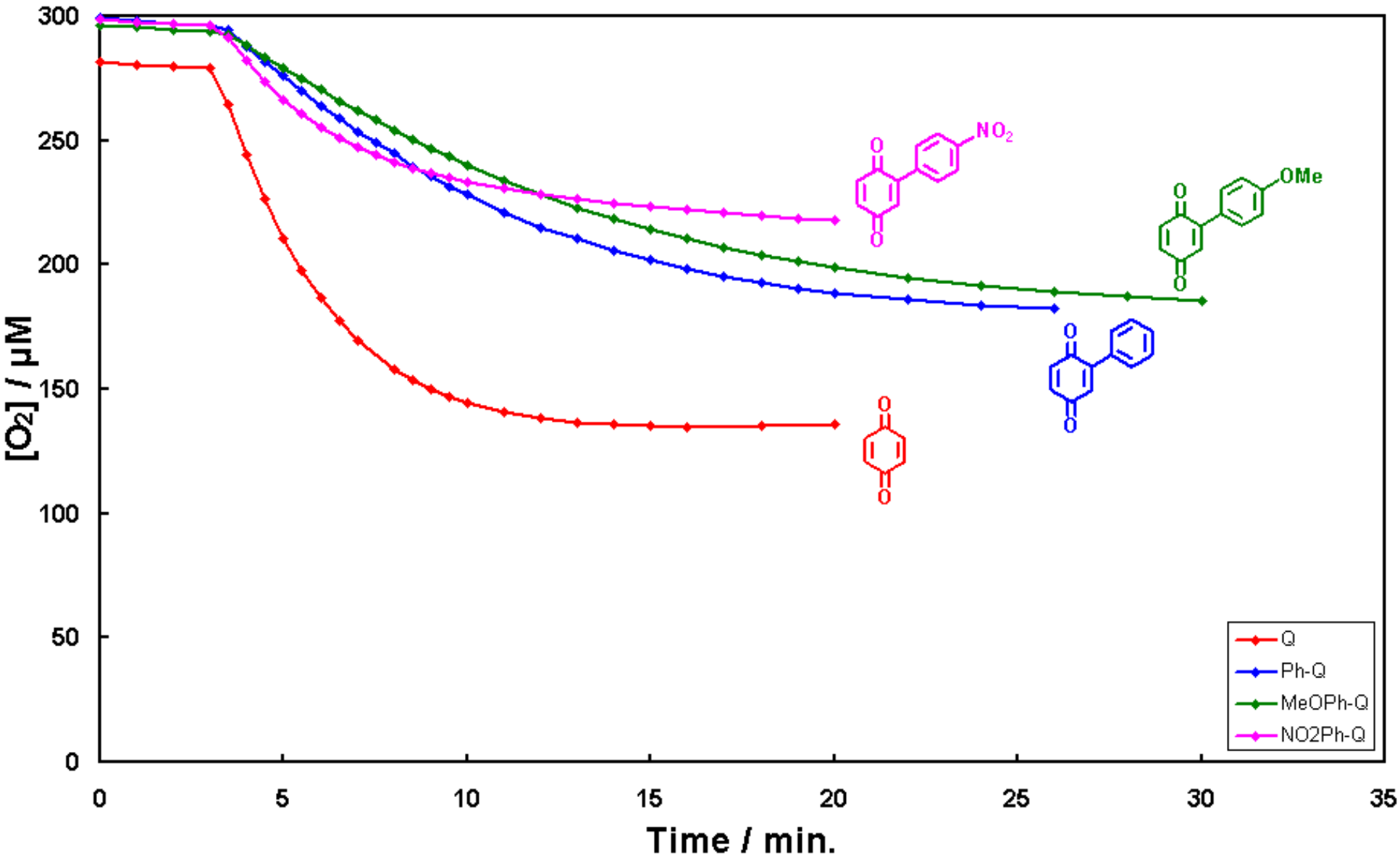
Effect of increasing amount of bovine liver Sigma Aldrich C30 catalase on the reduction of dioxygen by DEHA, catalyzed by H_2Q at t = 3 min. Conditions: pH 10.5, $[DEHA]_0$ = 0.84 mM, $[H_2Q]$ = 16 µM, T = 20 °C.



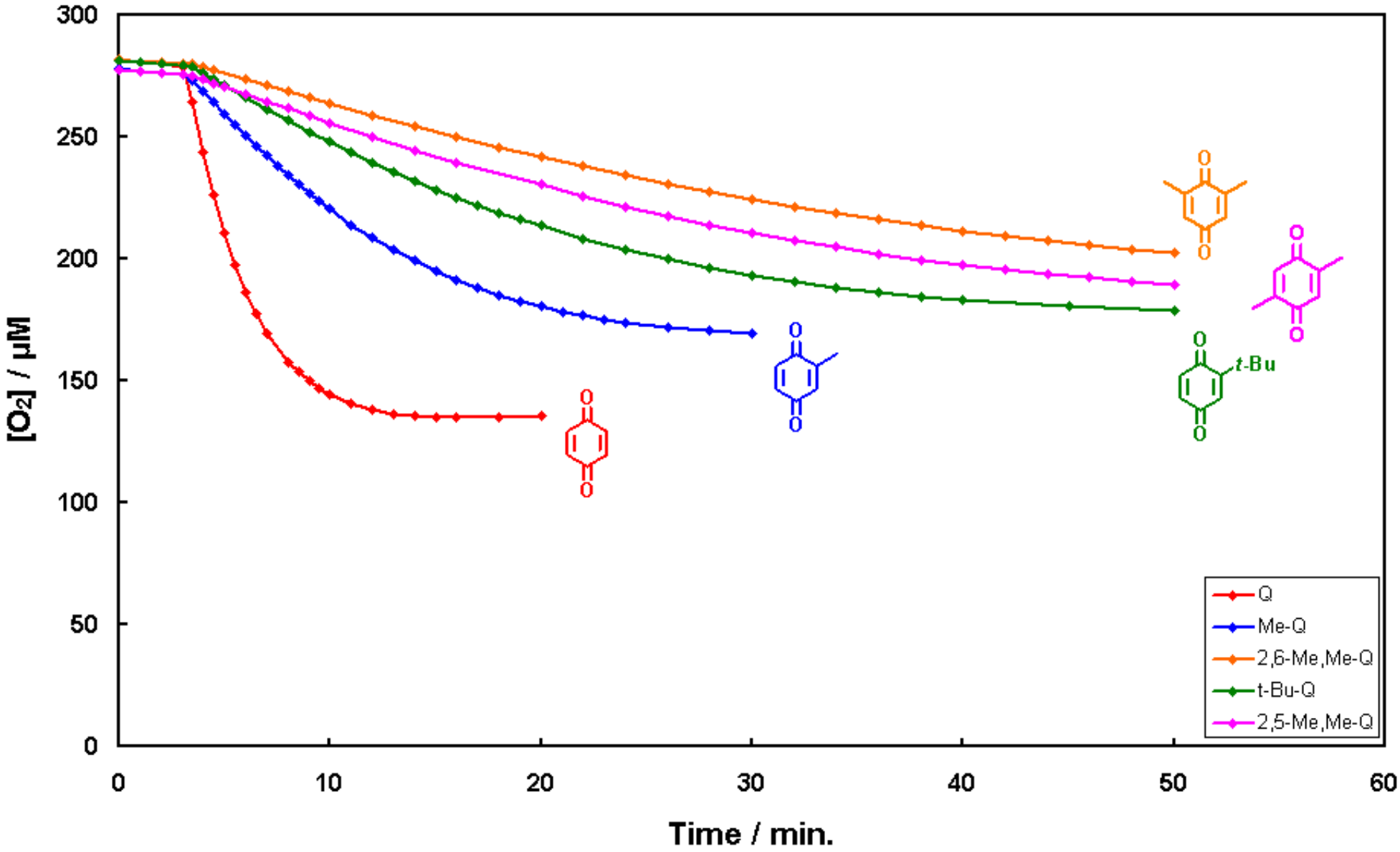
Dioxygen reduction by various *p*-benzoquinones in water in the presence of DEHA. Conditions: pH = 10.5, [DEHA] = 0.84 mM, [Q] = 16 µM, T = 20 °C.



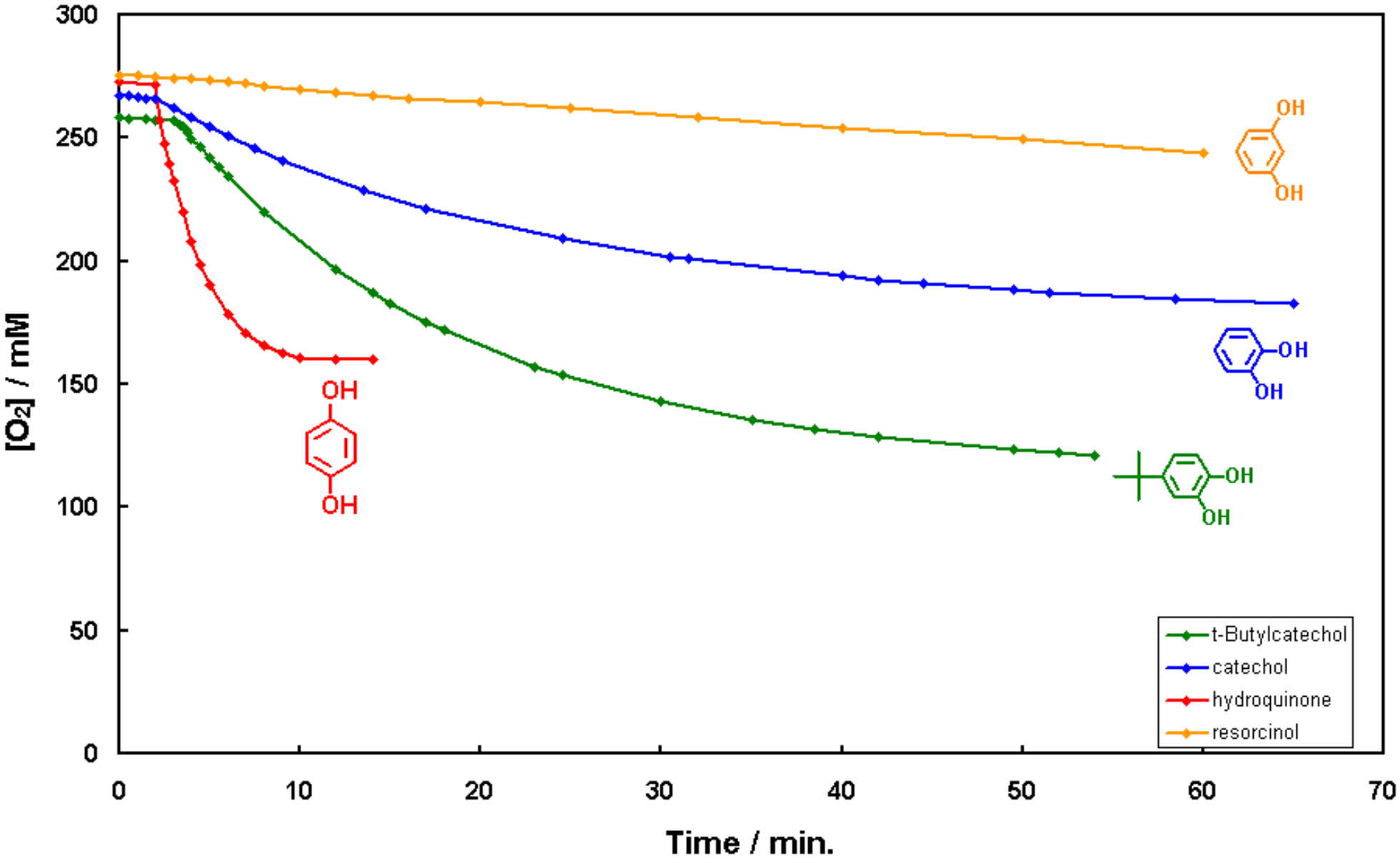
Dioxygen reduction by various *p*-benzoquinones in water in the presence of DEHA. Conditions: pH = 10.5, [DEHA] = 0.84 mM, [Q] = 16 μM, T = 20 °C.



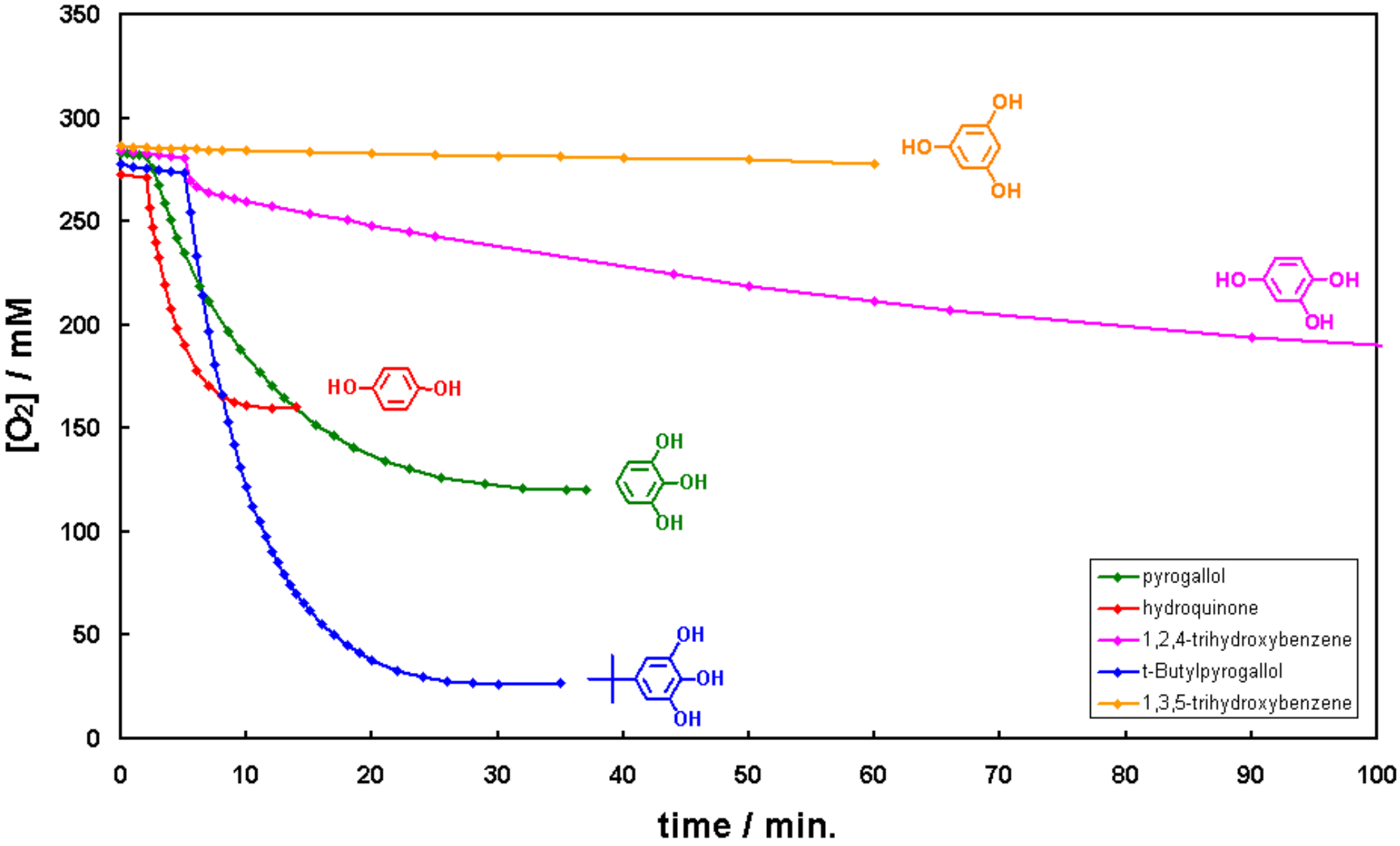
Dioxygen reduction by various *p*-benzoquinones in water in the presence of DEHA. Conditions: pH = 10.5, [DEHA] = 0.84 mM, [Q] = 16 μM, T = 20 °C.



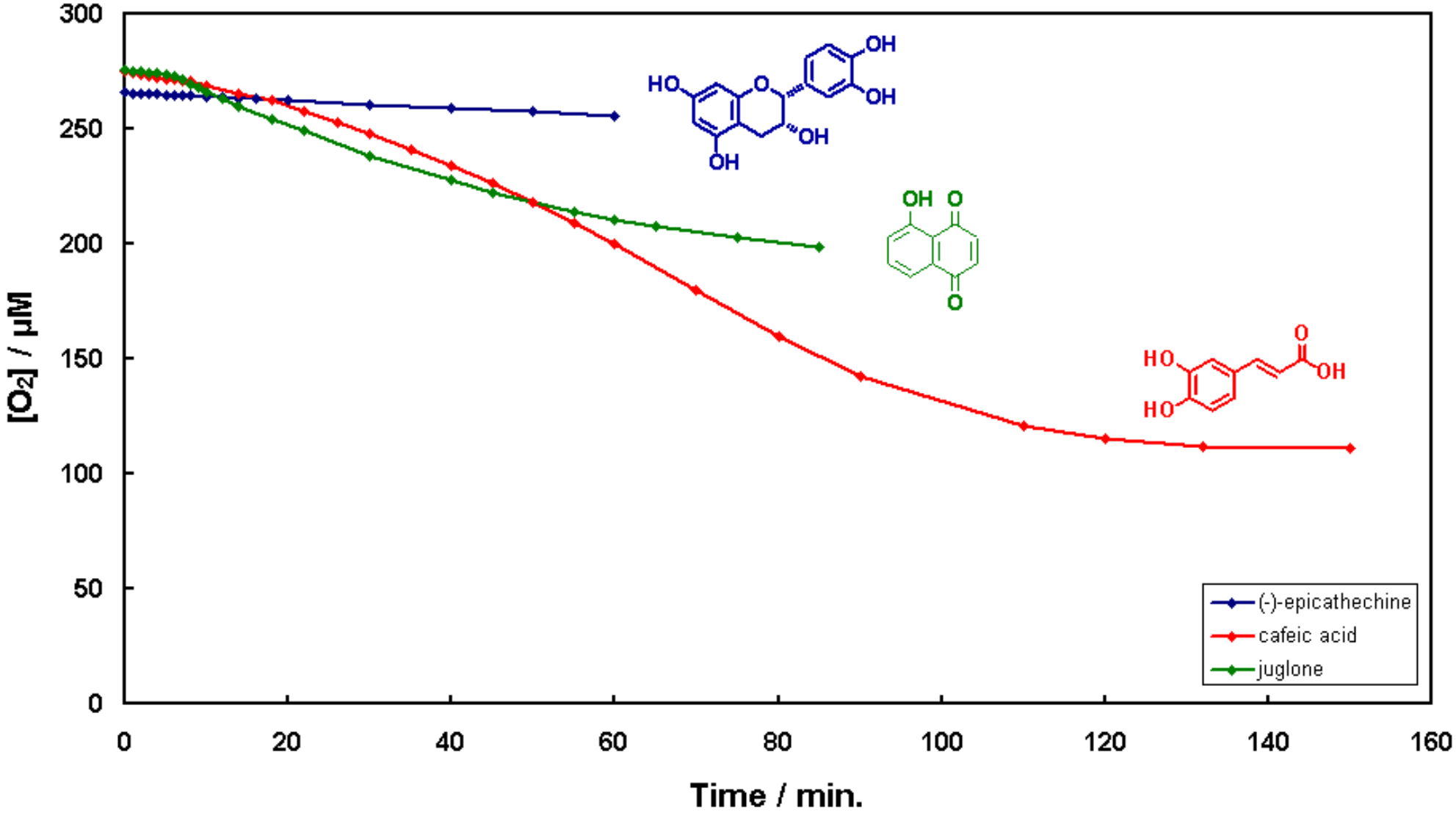
Comparison of benzenediols as catalysts for dioxygen reduction by DEHA in water. Conditions: pH 10.5, [DEHA] = 0.84 mM, [catalyst] = 16 μM, T = 20 °C.



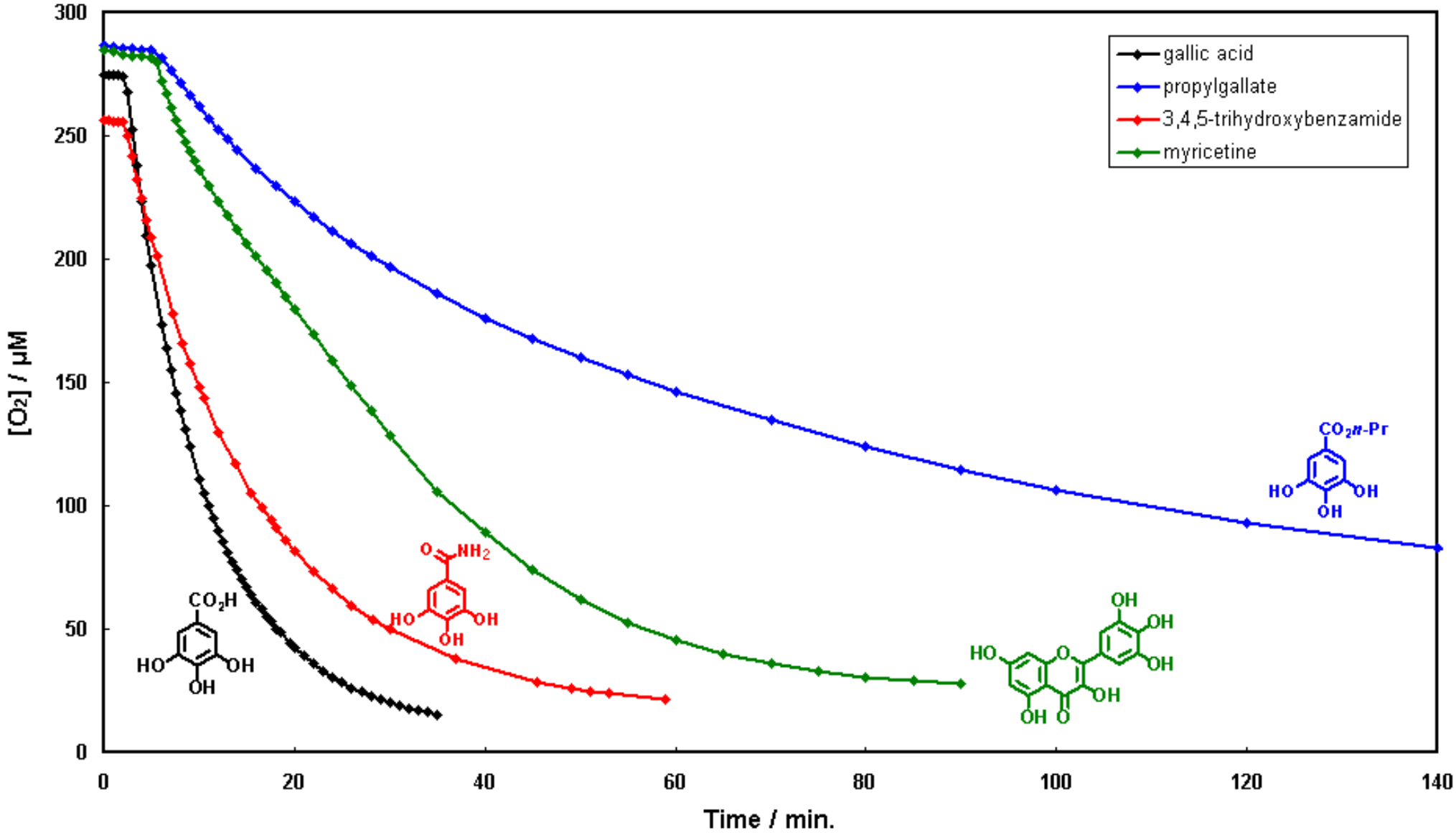
Comparison of benzenetriols as catalysts for dioxygen reduction by DEHA in water. Conditions: pH 10.5, [DEHA] = 0.84 mM, [catalyst] = 16 μM, T = 20 °C.



Comparison of polyphenols as catalysts for dioxygen reduction by DEHA in water. Conditions: pH 10.5, [DEHA] = 0.84 mM, [catalyst] = 16 μM, T = 20 °C.



Comparison of polyphenols as catalysts for dioxygen reduction by DEHA in water. Conditions: pH 10.5, [DEHA] = 0.84 mM, [catalyst] = 16 μM, T = 20 °C.



Dioxygen reduction by DEHA in water in the presence of bovine liver catalase C30 (1 mg/L) and H_2Q (blue) or gallic acid (red) as catalysts, and without catalase in presence of gallic acid only (black). Conditions: $[DEHA]_0$ = 0.84 mM, pH 10.5, [catalyst] = 16 µM added at t = 4 min, T = 20 °C.