Pure Appl. Chem.; doi:10.1351/PAC-CON-11-01-01

Supporting Information for

An oxidative carbon–carbon bond-forming reaction proceeds via an isolable iminium ion

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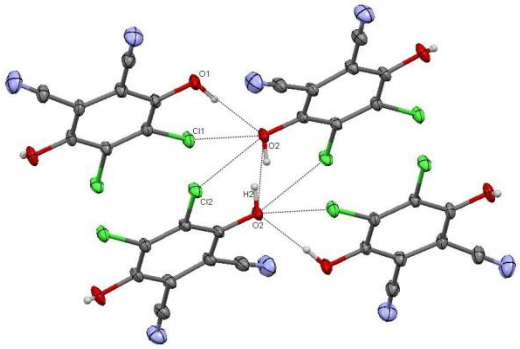
Contents:

Figure S1. X-ray Crystallography: Interactions between: (a) DDQ units and (b) DDQ:THIQ units in complex **4**. S2

Figure S2. UV-visible trace of the reaction between DDQ and *N*-phenyl tetrahydroisoquinoline **1** *ca*. 5 minutes after mixing. S3

a)



b)

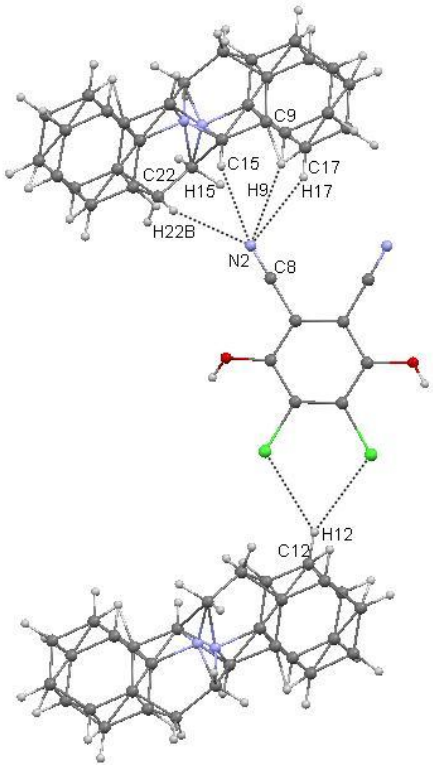


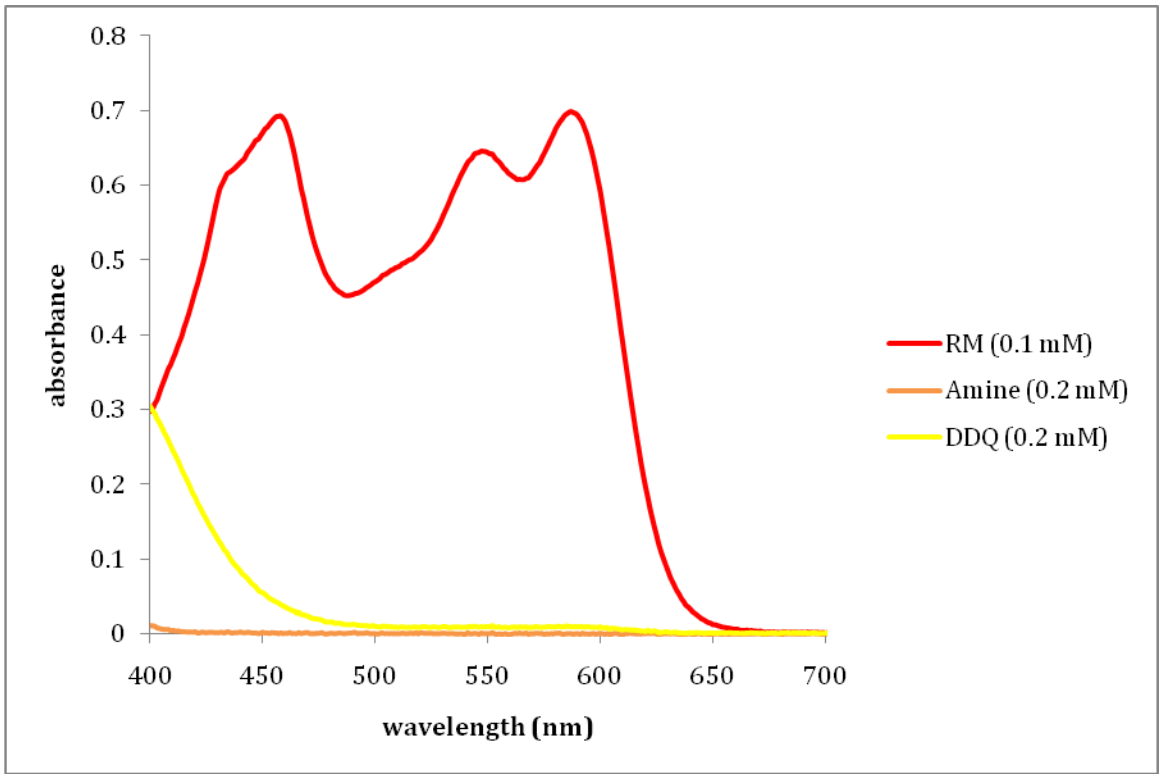
Figure S1. X-ray Crystallography: Interactions between: (a) DDQ units and (b) DDQ:THIQ units in complex **4**. Significant H-bonding parameters are given below

Nr	Typ	Res	Donor	---	H....Acceptor	[ARU]	D - H	H...A	D...A	D - H...A
1	Intra	2	O(1)	--H(1)	..Cl(1)	[ ]	0.84	2.61	2.9849(14)	108
2		2	O(1)	--H(1)	..O(2)	[4564.02]	0.84	1.89	2.6941(18)	160'
3		2	O(2)	--H(2)	..O(2)	[7556.02]	0.84	1.66	2.4773(18)	164
4		1*C(9)		--H(9)	..N(2)	[4564.02]	0.95	2.61	3.540(5)	166
5		1*C(12)		--H(12)	..Cl(2)	[5555.02]	0.95	2.79	3.559(5)	139
6		1*C(15)		--H(15)	..N(2)	[3666.02]	0.95	2.49	3.242(4)	136
7		1*C(17)		--H(17)	..N(2)	[3666.02]	0.95	2.56	3.357(5)	142
8		1*C(22)		--H(22B)	..N(2)	[4564.02]	0.99	2.50	3.195(4)	127
9		1*C(23)		--H(23B)	..N(1)	[1565.02]	0.99	2.43	3.212(4)	136

(9 is not shown in the above figure)

Translation of ARU-code to Equivalent Position Code

[5555.] = 1/2+x,1/2+y,z
[3666.] = 1-x,1-y,1-z
[1565.] = x,1+y,z
[4564.] = x,1-y,-1/2+z
[7556.] = 1/2-x,1/2-y,1-z



Solutions of 2-phenyl-1,2,3,4-tetrahydroisoquinoline and DDQ were made with nitromethane (0.2 mM) and UV-visible spectra (400 – 900 nm) were recorded at room temperature. The solutions were combined in a 1:1 ratio to give the reaction mixture (0.1 mM) and UV-visible

spectra recorded. Extinction coefficients were calculated at the observed local maxima assuming 100% conversion to the unidentified product.

λ (nm)	**ε ($Lcm^{-1}mol^{-1}$)**
587	6980
547	6452
458	6923

Figure S2. UV-visible trace of the reaction between DDQ and *N*-phenyl tetrahydroisoquinoline **1** *ca*. 5 minutes after mixing.