Surfactant/ I₂/ Water: An Efficient *System* for Deprotection of Oximes and Imines to Carbonyls Under Neutral Conditions in Water

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Supporting Information

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General Information

^1H NMR spectra were recorded on 60 MHz. Chemical shifts are expressed in δ units relative to tetramethylsilane (TMS) signal as internal reference in CDCl_3 . FTIR spectra were recorded in CHCl_3 or on KBr pellets. Commercially available I_2 , Sodium dodecyl sulphate (SDS) were used directly and oximes and imines were prepared by following standard literature procedure. Column chromatography was performed on silica gel (60-120 mesh) using ethyl acetate and hexane as eluent.

Characterization Data:

3a. Cyclohexanone: According to the general procedure, cyclohexanone oxime gave cyclohexanone, 74.5 mg (isolated yield; 76%) as a liquid. ^1H NMR (CDCl_3 , 60 MHz): δ 2.3-2.4 (m, 4H), 1.7-1.9 (m, 6H). FTIR (CHCl_3): 1715.4 cm^{-1} . Anal. Calcd. For $\text{C}_{10}\text{H}_{10}\text{O}$ (98.15): C, 73.45; H, 10.27. Found: C, 73.55; H, 10.21.

3b. 6-Methoxy-1-tetralone: According to the general procedure, 6-Methoxy-1-tetralone oxime gave 6-methoxy-1-tetralone as a solid, M.p. 78°C ; 123mg (isolated yield; 69.8 %), ^1H NMR (CDCl_3 , 60 MHz) δ 7.6 (d, 1H), 6.5 (d, 1H), 6.3 (s, 1H), 3.6 (s, 3H), 1.7-2.1 (m, 2H), 2.2-2.5 (t, 2H), 2.6-2.8 (t, 2H); FTIR (KBr) 1606 cm^{-1} . Anal. Calcd. For $\text{C}_{11}\text{H}_{12}\text{O}_2$ (176.22): C, 74.98; H, 6.86. Found: C, 75.05; H, 6.78.

3c. Acetophenone: According to the general procedure, acetophenone oxime gave acetophenone as a liquid; 96 mg (isolated yield; 80%). ^1H NMR (CDCl_3 , 60 MHz) δ 7.8-8.0 (m, 2H), 7.3-7.6 (m, 3H), 2.57 (s, 3H); FTIR (CHCl_3) 1685 cm^{-1} . Anal. Calcd. For $\text{C}_8\text{H}_8\text{O}$ (120.15): C, 79.97; H, 6.71. Found: C, 79.80; H, 6.58.

3d. 4-isobutylacetophenone: According to the general procedure, 4-isobutylacetophenone oxime gave 4-isobutyl acetophenone as a liquid; 137 mg, (isolated yield 77.8 %). ^1H NMR (60 MHz, CDCl_3): δ 0.81(d, 6H), 1.30-2.00(m, 1H), 2.40(d, 2H), 2.50(s, 3H), 6.90(d, 2H, aromatic-H), 7.55(d, 2H, aromatic-H); FTIR: (CHCl_3) 1682 cm^{-1} . Anal. Calcd. For $\text{C}_{12}\text{H}_{16}\text{O}$ (176.3): C, 81.77; H, 9.15. Found: C, 81.75; H, 9.20.

3e. Benzophenone: According to the general procedure, benzophenone oxime gave benzophenone as a solid, M.p. $48\text{ }^\circ\text{C}$; 127 mg (isolated yield; 69.8%), ^1H NMR (CDCl_3 , 60 MHz) δ 7.4-7.8 (m, 10H); FTIR (KBr) 1665 cm^{-1} . Anal. Calcd. For $\text{C}_{13}\text{H}_{10}\text{O}$ (182.22): C, 85.69; H, 5.53. Found: C, 85.51; H, 5.22.

3f. Benzaldehyde: According to the general procedure, benzaldoxime gave 92 mg (86.8%, isolated yield) of benzaldehyde as liquid, ^1H NMR (CDCl_3 , 60 MHz) δ 10.2 (s, 1H), 7.5-7.9 (m, 5H); FTIR (CHCl_3) 1701 cm^{-1} . Anal. Calcd. For $\text{C}_7\text{H}_6\text{O}$ (106.12): C, 79.23; H, 5.70. Found: C, 79.50; H, 5.29.

3g. 4-Methoxybenzaldehyde: According to the general procedure, 4-methoxybenzaldoxime gave 4-methoxybenzaldehyde, 123mg (isolated yield; 90.4%) as a liquid; ^1H NMR (CDCl_3 , 60 MHz) δ 9.87 (s, 1H), 7.83 (d, 2H), 7.0(d, 2H), 3.87 (s, 3H); FTIR (CHCl_3) 1684 cm^{-1} . Anal. Calcd. For $\text{C}_8\text{H}_{10}\text{O}_2$ (136.15): C, 70.58; H, 8.14. Found: C, 70.58; H, 8.23.

3h. 4-Nitrobenzaldehyde: According to the general procedure, 4-nitrobenzaldoxime gave 113 mg (74.8%, isolated yield) of 4-nitrobenzaldehyde as a solid, M.p. $106\text{-}108\text{ }^\circ\text{C}$; ^1H NMR (CDCl_3 , 60 MHz) δ 10.3 (s, 1H), 8.3 (d, 2H), 8.0 (d, 2H); FTIR (KBr) 1680 cm^{-1} . Anal. Calcd. For $\text{C}_7\text{H}_5\text{NO}_3$ (151.12): C, 55.64; H, 3.33; N, 9.27. Found: C, 55.70; H, 3.27; N, 9.32.

3i. *p*-Dimethylaminobenzaldehyde. According to the general procedure, *p*-dimethylaminobenzaldoxime gave 107 mg (71.8%, isolated yield) of *p*-dimethylaminobenzaldehyde as a solid, M.p.74 °C; ¹H NMR (CDCl₃, 60 MHz) δ 9.70 (s, 1H), 7.71 (dd, 2H), 6.69 (dd, 2H), 3.05 (s, 6H); FTIR (KBr) 1672cm⁻¹. Anal. Calcd. For C₉H₁₁NO (149.19): C, 72.46; H, 7.43; N, 9.39. Found: C, 72.55; H, 7.42; N, 9.34.

3j. Vanillin. According to the general procedure, vanilline oxime gave 110 mg (72.5%, isolated yield) of vanilline as a solid, M.p.81-84 °C; ¹H NMR (CDCl₃, 60 MHz) δ 9.78 (s, 1H), 7.02-7.4 (m, 3H), 6.47 (s, 1H), 3.93 (s, 3H); FTIR (KBr) 1696 cm⁻¹. Anal. Calcd. For C₈H₈O₃ (152.15): C, 63.15; H, 5.30. Found: C, 63.11; H, 5.28.

3k. Cinnamaldehyde: According to the general procedure, cinnamaldehyde oxime gave Cinnamaldehyde as a liquid; 96 mg (isolated yield; 72.7%) ¹H NMR (CDCl₃, 60 MHz) δ 9.7 (d, 1H), 7.4-7.5 (m, 5H), 6.5-6.7 (m, 2H); FTIR (CHCl₃) 1681 cm⁻¹. Anal. Calcd. For C₉H₈O (132.16): C, 81.79; H, 6.10. Found: C, 81.87; H, 6.20.

3l. 2-Furfaldehyde: According to the general procedure, furfural oxime gave furfural as a liquid; 73 mg, (isolated yield 76 %). ¹H NMR (60 MHz, CDCl₃): δ 9.7(s, 1H), 7.7(s, 1H), 7.28 (s, 1H), 6.6 (s, 1H); FTIR: (CHCl₃) 1682 cm⁻¹. Anal. Calcd. For C₅H₄O₂ (96.09): C, 62.50; H, 4.20. Found: C, 62.11; H, 4.27.

3m. 1-Chloro-6-methoxy-3,4-dihydronaphthyl-2-carboxaldehyde: According to the general procedure, 1-Chloro-6-methoxy-3,4-dihydronaphthyl-2-carboxaldoxime gave 1-Chloro-6-methoxy-3,4-dihydronaphthyl-2-carboxaldehyde as a solid, M.p.91 °C; 145 mg, (isolated yield 65 %). ¹H NMR (60 MHz, CDCl₃): δ 10.25(s, 1H), 7.85(dd, 1H), 7.60 (d, 1H), 6.76(d, 1H), 3.74(s, 3H), 2.50 (m, 4H); FTIR: (KBr) 1672 cm⁻¹. Anal. Calcd. For C₁₂H₁₁O₂Cl (222.67): C, 64.73; H, 4.98. Found: C, 64.53; H, 5.12.

3n. 2-Pyridinecarboxaldehyde: According to the general procedure, 2-Pyridinecarboxaldoxime gave 76 mg (71%, isolated yield) of 2-Pyridinecarboxaldehyde as a pale yellow liquid. ^1H NMR (CDCl_3 , 60 MHz) δ 10.3 (s, 1H), 8.7-8.8 (m, 1H), 7.8-8.0 (m, 2H), 7.5-7.6 (m, 1H); FTIR (KBr) 1715 cm^{-1} . Anal. Calcd. For $\text{C}_6\text{H}_5\text{NO}$ (107.11): C, 67.28; H, 4.71. Found: C, 67.25; H, 4.72.

3o. Benzaldehyde: According to the general procedure, benzylideneaniline gave 76 mg (72%, isolated yield) of benzaldehyde as liquid, ^1H NMR (CDCl_3 , 60 MHz) δ 10.2 (s, 1H), 7.5-8.0(m, 5H); FTIR (CHCl_3) 1696 cm^{-1} . Anal. Calcd. For $\text{C}_7\text{H}_6\text{O}$ (106.12): C, 79.23; H, 5.70. Found: C, 79.50; H, 5.29.

3p. *p*-Chlorobenzaldehyde. According to the general procedure, N-[(*p*-chlorophenyl)methylene]benzenamine gave 94 mg (67%, isolated yield) of *p*-chlorobenzaldehyde as a solid, M.p.47-50 $^\circ\text{C}$; ^1H NMR (CDCl_3 , 60 MHz) δ 9.8 (s, 1H), 7.5-7.75 (m, 4H); FTIR (KBr) 1687 cm^{-1} . Anal. Calcd. For $\text{C}_7\text{H}_5\text{OCl}$ (140.57): C, 59.81; H, 3.58. Found: C, 59.55; H, 3.72.

3q. *p*-Tolualdehyde. According to the general procedure, N-[(*p*-methyl)phenyl]methylene]benzenamine gave 82 mg (68.2 %, isolated yield) of *p*-tolualdehyde as a liquid; ^1H NMR (CDCl_3 , 60 MHz) δ 9.8 (s, 1H), 7.7 (dd, 2H), 7.2(dd, 2H), 2.4 (s, 3H) ; FTIR (KBr) 1690 cm^{-1} . Anal. Calcd. For $\text{C}_8\text{H}_8\text{O}$ (120.15): C, 79.97; H, 6.71. Found: C, 79.95; H, 6.62.