**Influence ofpyridine oximate and quaternizedpyridiniumoximate ions on the hydrolysis of phosphate esters in cationic microemulsions**

**Supporting Information**

**Table S1:** pH effects upon the cleavage of Paraoxon by 4-C10PyOx-and 4-PyOx-in O/W cationic microemulsion media at 300K.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **pH** | **104*kobs* (s-1)** | | | | | | | |
| **4-C10PyOx-** | | | | **4-PyOx-** | | | |
| ME-1 ME-3 ME-5 ME-7 | | | | ME-1 ME-3 ME-5 ME-7 | | | |
| 7.5 | 0.44 | 0.67 | 0.82 | 0.97 | 0.15 | 0.24 | 0.42 | 0.58 |
| 8.0 | 0.53 | 0.83 | 1.18 | 1.36 | 0.22 | 0.34 | 0.57 | 0.68 |
| 8.5 | 0.83 | 1.24 | 1.63 | 1.91 | 0.46 | 0.69 | 0.91 | 1.38 |
| 9.2 | 1.79 | 2.33 | 2.69 | 3.23 | 1.49 | 1.87 | 1.97 | 2.45 |
| 9.5 | 2.61 | 3.67 | 4.28 | 4.97 | 2.34 | 3.11 | 3.85 | 4.47 |
| 10.0 | 3.47 | 4.58 | 5.45 | 6.14 | 3.66 | 4.48 | 5.21 | 5.63 |
| 10.5 | 4.41 | 5.25 | 6.66 | 6.87 | 4.23 | 5.23 | 6.23 | 6.65 |
| 11.0 | 4.84 | 5.85 | 6.91 | 7.95 | 4.67 | 5.74 | 6.51 | 7.23 |

Conditions: [Paraoxon] = 1.0x10-4 M, [Nu-] = 1.0x10-3 M, µ = 0.1M (KCl), Temp. 300K.

**Table S2:** pH effects upon the cleavage of PNPDPP by 4-C10PyOx- and 4-PyOx- in O/W cationic microemulsion media at 300K.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **pH** | **103*kobs* (s-1)** | | | | | | | |
| **4-C10PyOx-** | | | | **4-PyOx-** | | | |
| ME-1 ME-3 ME-5 ME-7 | | | | ME-1 ME-3 ME-5 ME-7 | | | |
| 7.0 | 0.87 | 0.91 | 1.33 | 1.45 | 0.88 | 0.89 | 1.43 | 1.45 |
| 7.5 | 0.92 | 1.21 | 1.41 | 1.83 | 0.92 | 1.23 | 1.41 | 1.82 |
| 8.0 | 1.27 | 1.72 | 2.07 | 2.47 | 1.27 | 1.72 | 2.01 | 2.41 |
| 8.5 | 2.01 | 2.63 | 3.09 | 3.55 | 2.01 | 2.65 | 3.09 | 3.52 |
| 9.2 | 3.54 | 4.12 | 5.12 | 5.62 | 3.13 | 3.67 | 4.27 | 4.73 |
| 9.5 | 3.91 | 4.45 | 5.31 | 5.71 | 3.92 | 4.43 | 5.11 | 5.45 |
| 10.0 | 4.55 | 5.07 | 5.56 | 6.22 | 4.55 | 5.21 | 5.56 | 6.25 |
| 10.5 | 4.91 | 5.34 | 5.97 | 6.81 | 4.91 | 5.33 | 5.97 | 6.86 |

Conditions: [PNPDPP] = 1.0x10-4 M, [Nu-] = 1.0x10-3 M, µ = 0.1M (KCl), Temp. 300K.

**Table S3:** Kinetic parameters for the cleavage of Paraoxon catalyzed by 4-C12PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [4-C12PyOx-]  mM | 104*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.75 | 0.71 | 0.71 | 0.78 |
| 0.5 | 1.89 | 2.13 | 2.29 | 2.94 |
| 0.8 | 2.55 | 2.78 | 3.46 | 3.66 |
| 1.0 | 2.85 | 3.25 | 3.71 | 3.95 |
| 2.0 | 3.51 | 3.8 | 4.41 | 4.73 |
| 3.0 | 3.85 | 4.17 | 4.54 | 4.98 |
| 5.0 | 3.99 | 4.36 | 4.69 | 5.09 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [Paraoxon] = 1.0x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of Paraoxon under above conditions.

**Table S4:** Kinetic parameters for the cleavage of Paraoxon catalyzed by 4-C10PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [4-C10PyOx-]  mM | 104*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.52 | 0.52 | 0.51 | 0.52 |
| 0.5 | 1.44 | 1.63 | 1.84 | 2.56 |
| 0.8 | 1.63 | 1.84 | 2.49 | 2.82 |
| 1.0 | 1.79 | 2.33 | 2.69 | 3.23 |
| 2.0 | 2.36 | 2.68 | 3.14 | 3.63 |
| 3.0 | 2.55 | 2.86 | 3.25 | 3.73 |
| 5.0 | 2.69 | 2.99 | 3.39 | 3.87 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [Paraoxon] = 1x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of Paraoxon under above conditions.

**Table S5:** Kinetic parameters for the cleavage of Paraoxon catalyzed by 4-PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [4-PyOx-]  mM | 104*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.54 | 0.54 | 0.58 | 0.56 |
| 0.5 | 1.21 | 1.55 | 1.69 | 1.89 |
| 0.8 | 1.37 | 1.75 | 1.88 | 2.13 |
| 1.0 | 1.49 | 1.87 | 1.97 | 2.45 |
| 2.0 | 1.72 | 2.14 | 2.54 | 2.85 |
| 3.0 | 1.79 | 2.24 | 2.63 | 3.01 |
| 5.0 | 1.95 | 2.35 | 2.89 | 3.13 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [Paraoxon] = 1.0x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of Paraoxon under above conditions.

**Table S6:** Kinetic parameters for the cleavage of Paraoxon catalyzed by 2-PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [2-PyOx-]  mM | 104*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.63 | 0.56 | 0.65 | 0.65 |
| 0.5 | 1.07 | 1.25 | 1.49 | 2.12 |
| 0.8 | 1.13 | 1.36 | 1.68 | 2.36 |
| 1.0 | 1.21 | 1.44 | 1.78 | 2.40 |
| 2.0 | 1.32 | 1.52 | 1.91 | 2.74 |
| 3.0 | 1.44 | 1.64 | 2.01 | 2.85 |
| 5.0 | 1.59 | 1.79 | 2.18 | 2.99 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [Paraoxon] = 1.0x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of Paraoxon under above conditions.

**Table S7:** Kinetic parameters for the cleavage of PNPDPP catalyzed by 4-C12PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [4-C12PyOx-]  mM | 103*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.92 | 0.93 | 0.92 | 0.93 |
| 0.5 | 2.32 | 3.61 | 4.12 | 5.26 |
| 0.8 | 2.95 | 4.18 | 4.71 | 5.69 |
| 1.0 | 3.62 | 4.61 | 5.35 | 6.24 |
| 2.0 | 4.84 | 5.91 | 6.89 | 7.82 |
| 3.0 | 5.25 | 6.38 | 7.43 | 8.66 |
| 5.0 | 5.52 | 6.74 | 7.77 | 8.91 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [PNPDPP] = 1.0x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of PNPDPP under above conditions.

**Table S8:** Kinetic parameters for the cleavage of PNPDPP catalyzed by 4-C10PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [4-C10PyOx -]  mM | 103*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.92 | 0.92 | 0.92 | 0.89 |
| 0.5 | 2.11 | 3.11 | 3.42 | 4.35 |
| 0.8 | 2.87 | 3.61 | 4.21 | 4.91 |
| 1.0 | 3.54 | 4.12 | 5.12 | 5.62 |
| 2.0 | 4.22 | 5.28 | 6.11 | 6.71 |
| 3.0 | 4.44 | 5.81 | 6.46 | 7.02 |
| 5.0 | 5.01 | 6.12 | 6.69 | 7.15 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [PNPDPP] = 1.0x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of PNPDPP under above conditions.

**Table S9:** Kinetic parameters for the cleavage of PNPDPP catalyzed by 4-PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [4-PyOx-]  mM | 103*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.84 | 0.85 | 0.85 | 0.85 |
| 0.5 | 1.41 | 2.11 | 2.43 | 3.51 |
| 0.8 | 2.43 | 2.81 | 3.61 | 4.17 |
| 1.0 | 3.11 | 3.67 | 4.27 | 4.73 |
| 2.0 | 3.78 | 4.42 | 5.03 | 5.76 |
| 3.0 | 4.34 | 4.76 | 5.34 | 6.05 |
| 5.0 | 4.61 | 5.25 | 5.59 | 6.18 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [PNPDPP] = 1.0x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of PNPDPP under above conditions.

**Table S10:** Kinetic parameters for the cleavage of PNPDPP catalyzed by 2-PyOx- in different microemulsionrecipesa

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [2-PyOx-]  mM | 103*kobs* (s-1)b  ME-1 ME-2 ME-3 ME-4 | | | |
| 0.0 | 0.72 | 0.74 | 0.74 | 0.72 |
| 0.5 | 2.42 | 1.35 | 1.71 | 1.99 |
| 0.8 | 1.41 | 1.71 | 2.34 | 2.61 |
| 1.0 | 1.51 | 2.04 | 2.45 | 2.72 |
| 2.0 | 1.76 | 2.28 | 2.83 | 3.18 |
| 3.0 | 1.92 | 2.47 | 2.88 | 3.26 |
| 5.0 | 2.08 | 2.63 | 3.01 | 3.41 |

aConditions: pH 9.2,0.01M Borate Buffer, µ = 0.1M(KCl), Temp. 300K, [PNPDPP] = 1.0x10-4 M.

bObserved pseudo-first-order rate constants for the cleavage of PNPDPP under above conditions.