

**Table S1.** Crystallographic data for known hydrogen selenites with organic molecules.

Chemical formula	Space group	<i>a</i> , Å	<i>α</i> , °	<i>b</i> , Å	<i>β</i> , °	<i>c</i> , Å	<i>γ</i> , °	Reference
[C <sub>6</sub> H <sub>15</sub> N <sub>4</sub> O <sub>2</sub> ][HSeO <sub>3</sub> ] 0.15(H <sub>2</sub> O)	<i>C2</i>	22.493(5)		5.1624(13)	95.68(3)	9.730(4)		Matos Gomes et al., 2001 [17]
[C <sub>9</sub> H <sub>12</sub> NO <sub>2</sub> ][C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> ][HSeO <sub>3</sub> ]	<i>P1</i>	11.0507(4)	107.867(2)	12.8611(5)	110.392(2)	15.8820(6)	90.017(2)	Gharzaryan et al., 2010 [3]
[C <sub>8</sub> H <sub>20</sub> N][HSeO <sub>3</sub> ]	<i>P-1</i>	7.926(6)	80.64(1)	8.909(7)	65.15(1)	9.146(7)	77.19(2)	Wang et al., 2006 [18]
[C <sub>2</sub> H <sub>7</sub> N <sub>4</sub> O][HSeO <sub>3</sub> ]	<i>P-1</i>	6.7643(4)	63.021(1)	7.9045(5)	81.414(1)	8.2612(5)	72.200(1)	Ritchie et al., 2003 [13]
[CH <sub>6</sub> N <sub>3</sub> ][HSeO <sub>3</sub> ]	<i>P2</i> <sub>1</sub>	4.145(2)		7.851(3)	98.77(3)	9.154(4)		Krumbe et al., 1987 [5]
[HSeO <sub>3</sub> ][C <sub>2</sub> H <sub>6</sub> NO <sub>2</sub> ][C <sub>2</sub> H <sub>5</sub> NO <sub>2</sub> ]	<i>P2</i> <sub>1</sub> / <i>c</i>	12.2651(7)		4.8079(6)	122.745(4)	19.955(1)		Nemec et al., 1998 [7]
[C <sub>11</sub> H <sub>13</sub> N <sub>2</sub> O <sub>2</sub> ][HSeO <sub>3</sub> ]	<i>P2</i> <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	5.4406(6)		8.2436(6)		27.539(3)		Paixao et al., 2006 [11]
[C <sub>7</sub> H <sub>8</sub> NO <sub>2</sub> ][HSeO <sub>3</sub> ][H <sub>2</sub> O]	<i>P-1</i>	4.6718(6)	104.395(12)	9.3967(15)	92.705(11)	12.7992(14)	103.109(13)	Kamali et al., 2018 [4]
[C <sub>13</sub> H <sub>14</sub> N <sub>3</sub> ][HSeO <sub>3</sub> ][H <sub>2</sub> O]	<i>P2</i> <sub>1</sub> / <i>n</i>	6.360(1)		19.272(2)	93.75(1)	12.604(2)		Paixao et al., 1997 [12]
[C <sub>6</sub> H <sub>8</sub> N][HSeO <sub>3</sub> ][H <sub>2</sub> O]	<i>P-1</i>	4.7212(2)	107.297(3)	9.3681(3)	92.294(3)	11.1290(3)	103.549(3)	Takouachet et al., 2016 [14]
[C <sub>6</sub> H <sub>8</sub> N][HSeO <sub>3</sub> ][H <sub>2</sub> O]	<i>P1</i>	4.7423(3)	107.271(6)	9.4263(8)	92.652(6)	11.1599(7)	103.370(7)	Takouachet et al., 2016 [14]
[C <sub>20</sub> H <sub>15</sub> N <sub>4</sub> ][HSeO <sub>3</sub> ] 2(H <sub>2</sub> O)	<i>P2</i> <sub>1</sub> / <i>c</i>	18.708(2)		14.320(1)	92.89(1)	7.349(3)		Chen et al., 2010 [2]
[C <sub>4</sub> H <sub>6</sub> N <sub>3</sub> O][HSeO <sub>3</sub> ]	<i>Pca</i> 2 <sub>1</sub>	7.0051(3)		8.6342(2)		12.7131(3)		Takouachet et al., 2014 [15]
[C <sub>6</sub> H <sub>16</sub> N <sub>2</sub> ][HSeO <sub>3</sub> ]	<i>Pbcn</i>	14.682(2)		6.491(1)		13.065(2)		Nemec et al., 2001 [8]
[C <sub>6</sub> H <sub>16</sub> NO <sub>3</sub> ][HSeO <sub>3</sub> ]	<i>P2</i> <sub>1</sub>	8.043(1)		5.3468(9)	93.66(1)	12.543(2)		Lukevics et al., 2002 [6]
[C <sub>36</sub> H <sub>30</sub> NP <sub>2</sub> ][HSeO <sub>3</sub> ][CH <sub>2</sub> Cl <sub>2</sub> ][H <sub>2</sub> O]	<i>P2</i> <sub>1</sub> / <i>c</i>	10.8664(11)		12.6743(13)	95.727(2)	26.029(3)		Canossa et al., 2018 [1]
[C <sub>10</sub> H <sub>16</sub> N][HSeO <sub>3</sub> ][H <sub>2</sub> SeO <sub>3</sub> ]	<i>Pbca</i>	9.840(1)		24.416(5)		12.2489(8)		Matos Gomes et al., 1995 [16]
[C <sub>5</sub> H <sub>11</sub> NO <sub>2</sub> ][HSeO <sub>3</sub> ]	<i>Fdd</i> 2	28.042(2)		21.815(2)		6.073(2)		Paixao et al., 1997 [11]
[C <sub>2</sub> H <sub>5</sub> NO <sub>2</sub> ][HSeO <sub>3</sub> ]	<i>P2</i> <sub>1</sub> / <i>n</i>	5.049(1)		13.677(2)	94.92(1)	8.664(1)		Ondracek et al., 1992 [9]
[C <sub>10</sub> H <sub>16</sub> N][HSeO <sub>3</sub> ][H <sub>2</sub> SeO <sub>3</sub> ]	<i>Pbca</i>	9.840(1)		24.416(5)		12.2489(8)		Matos Gomes et al., 1995 [16]

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