

## Supplementary Material

for

### Ovothiol A is the main antioxidant in the fish lens

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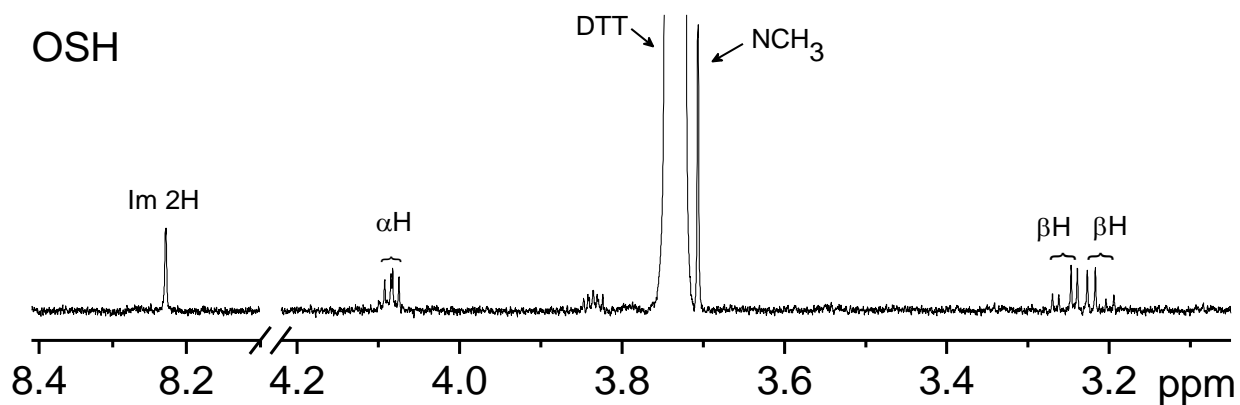
Supplementary Figure S4. ESI-Q-TOF mass-spectrum of CID fragments (MS/MS) of isolated parent ion with m/z 401.1061 (OSSO).

**Table S1.** Characterization of fish lenses used in this study.

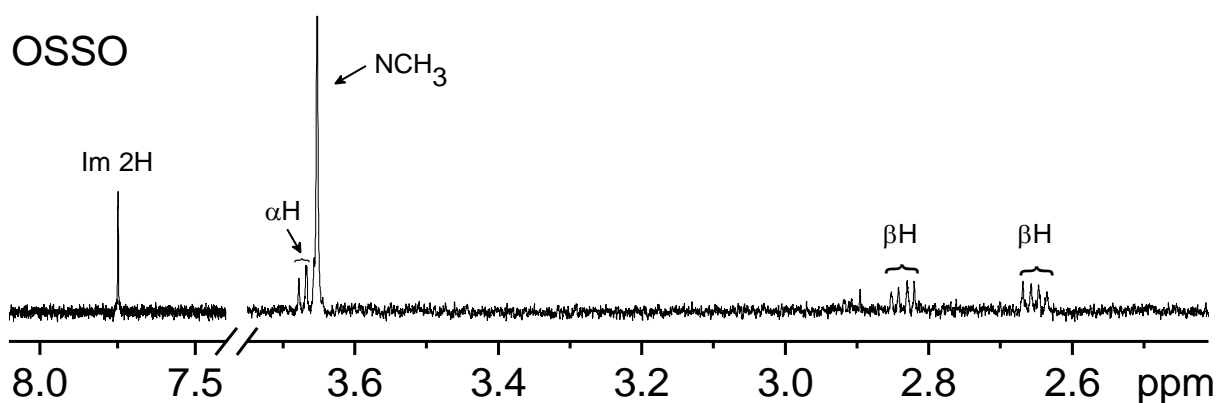
Sample Number	Fish Type	Date of catching	State of water area	Lens weight, mg
Group 1				
SA1	<i>S. lucioperca</i>	10.10.2017	Open water	158
SA2	<i>S. lucioperca</i>	10.10.2017	Open water	154
SA3	<i>S. lucioperca</i>	10.10.2017	Open water	94
SA4	<i>S. lucioperca</i>	10.10.2017	Open water	75
SA5	<i>S. lucioperca</i>	10.10.2017	Open water	135
SA6	<i>S. lucioperca</i>	10.10.2017	Open water	94
SA7	<i>S. lucioperca</i>	10.10.2017	Open water	79
SA8	<i>S. lucioperca</i>	10.10.2017	Open water	140
Group 2				
SW1	<i>S. lucioperca</i>	02.02.2018	Ice	98
SW2	<i>S. lucioperca</i>	02.02.2018	Ice	79
SW3	<i>S. lucioperca</i>	02.02.2018	Ice	78
SW4	<i>S. lucioperca</i>	02.02.2018	Ice	109
SW5	<i>S. lucioperca</i>	02.02.2018	Ice	114
SW6	<i>S. lucioperca</i>	02.02.2018	Ice	80
SW7	<i>S. lucioperca</i>	02.02.2018	Ice	73
Group 3				
RA1	<i>R. rutilus lacustris</i>	28.11.2017	Ice	47
RA2	<i>R. rutilus lacustris</i>	28.11.2017	Ice	33
RA3	<i>R. rutilus lacustris</i>	28.11.2017	Ice	49
RA4	<i>R. rutilus lacustris</i>	28.11.2017	Ice	42
RA5	<i>R. rutilus lacustris</i>	28.11.2017	Ice	35
RA6	<i>R. rutilus lacustris</i>	28.11.2017	Ice	32
RA7	<i>R. rutilus lacustris</i>	28.11.2017	Ice	49
RA8	<i>R. rutilus lacustris</i>	28.11.2017	Ice	35
RA9	<i>R. rutilus lacustris</i>	28.11.2017	Ice	38
RA10	<i>R. rutilus lacustris</i>	28.11.2017	Ice	43
Group 4				
RW1	<i>R. rutilus lacustris</i>	09.02.2018	Ice	35
RW2	<i>R. rutilus lacustris</i>	09.02.2018	Ice	35
RW3	<i>R. rutilus lacustris</i>	09.02.2018	Ice	42
RW4	<i>R. rutilus lacustris</i>	09.02.2018	Ice	34
RW5	<i>R. rutilus lacustris</i>	09.02.2018	Ice	34

**Table S2.** Concentrations of histidine, othiol and glutathione in individual lenses of *S. lucioperca* and *R. rutilus lacustris* (in nmoles per gram of the lens wet weight).

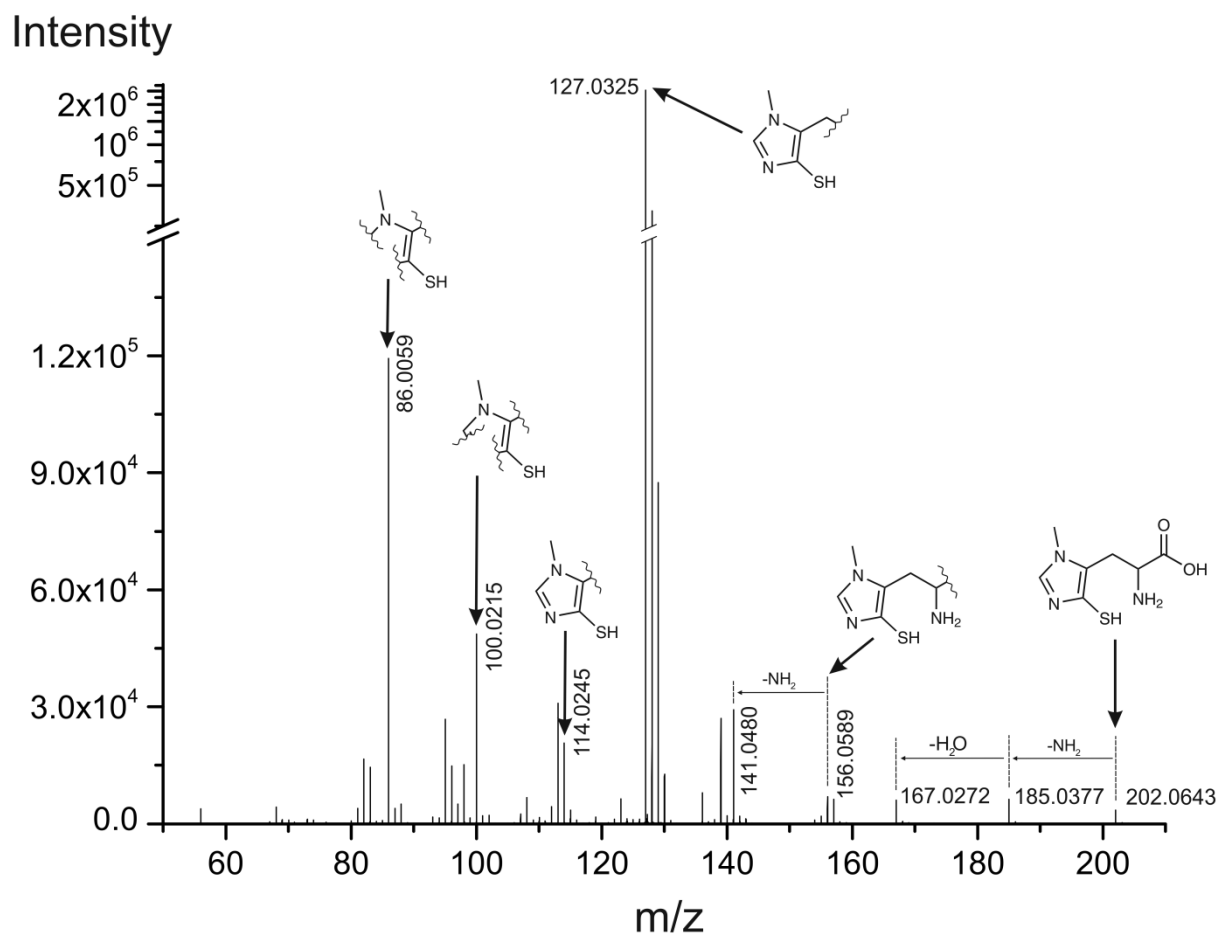
Sample Number	Fish Type	Date of catching	Histidine	OSH	GSH
Group 1					
SA1	<i>S. lucioperca</i>	10.10.2017	887	3036	467
SA2	<i>S. lucioperca</i>	10.10.2017	877	2723	309
SA3	<i>S. lucioperca</i>	10.10.2017	722	3273	358
SA4	<i>S. lucioperca</i>	10.10.2017	862	3160	366
SA5	<i>S. lucioperca</i>	10.10.2017	734	2674	539
SA6	<i>S. lucioperca</i>	10.10.2017	791	3306	774
SA7	<i>S. lucioperca</i>	10.10.2017	901	2958	371
SA8	<i>S. lucioperca</i>	10.10.2017	887	2764	548
Group 2					
SW1	<i>S. lucioperca</i>	02.02.2018	344	1774	564
SW2	<i>S. lucioperca</i>	02.02.2018	321	1544	454
SW3	<i>S. lucioperca</i>	02.02.2018	349	1654	579
SW4	<i>S. lucioperca</i>	02.02.2018	324	1507	403
SW5	<i>S. lucioperca</i>	02.02.2018	317	1638	369
SW6	<i>S. lucioperca</i>	02.02.2018	324	1532	481
SW7	<i>S. lucioperca</i>	02.02.2018	339	1758	554
Group 3					
RA1	<i>R. rutilus lacustris</i>	28.11.2017	370	1156	127
RA2	<i>R. rutilus lacustris</i>	28.11.2017	306	939	315
RA3	<i>R. rutilus lacustris</i>	28.11.2017	387	1217	66
RA4	<i>R. rutilus lacustris</i>	28.11.2017	208	911	91
RA5	<i>R. rutilus lacustris</i>	28.11.2017	468	1301	406
RA6	<i>R. rutilus lacustris</i>	28.11.2017	291	857	343
RA7	<i>R. rutilus lacustris</i>	28.11.2017	409	1180	365
RA8	<i>R. rutilus lacustris</i>	28.11.2017	444	1173	382
RA9	<i>R. rutilus lacustris</i>	28.11.2017	296	1081	409
RA10	<i>R. rutilus lacustris</i>	28.11.2017	266	927	329
Group 4					
RW1	<i>R. rutilus lacustris</i>	09.02.2018	277	390	195
RW2	<i>R. rutilus lacustris</i>	09.02.2018	241	162	252
RW3	<i>R. rutilus lacustris</i>	09.02.2018	272	271	215
RW4	<i>R. rutilus lacustris</i>	09.02.2018	243	252	45
RW5	<i>R. rutilus lacustris</i>	09.02.2018	271	256	48



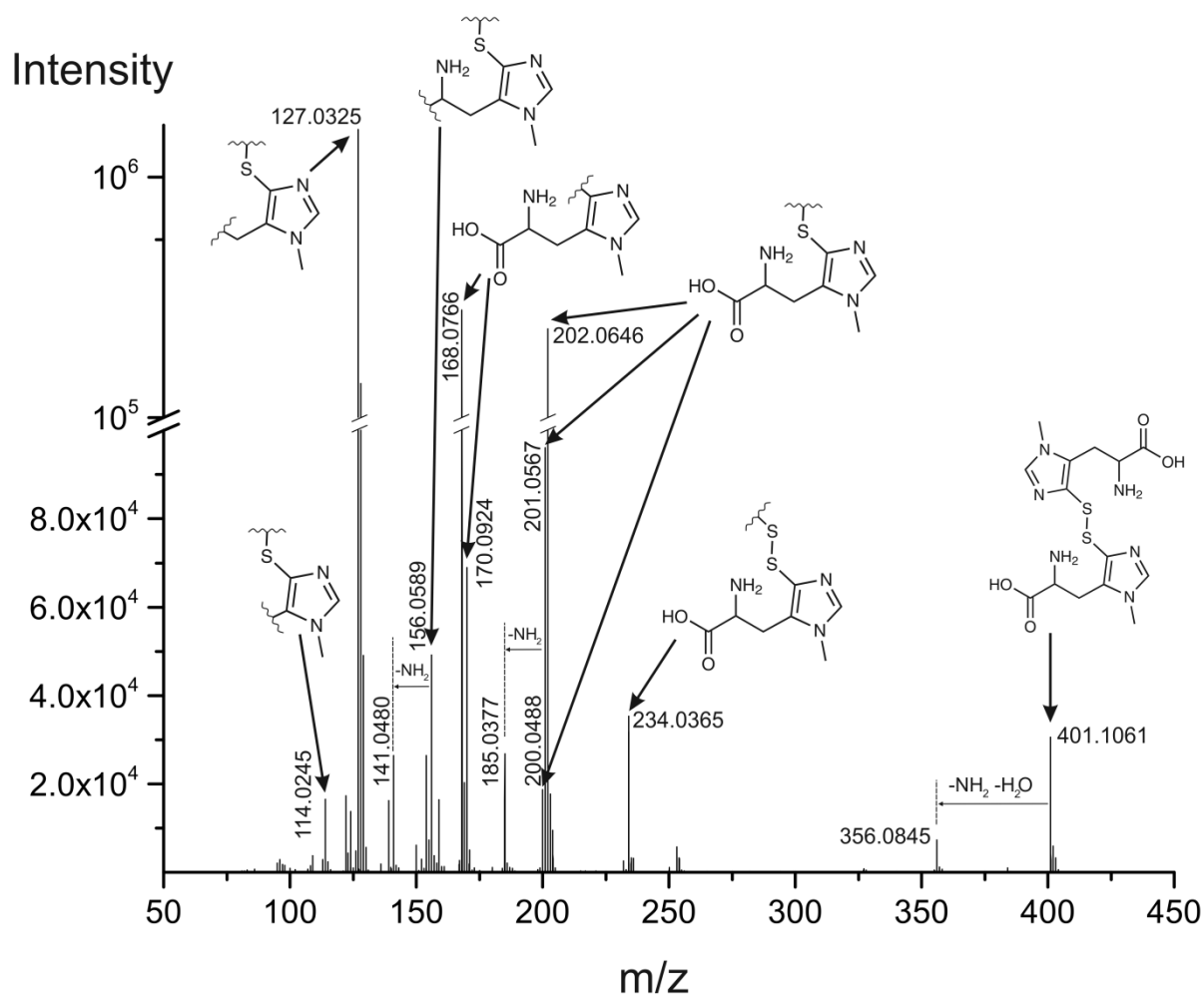
**Figure S1.** NMR spectrum of ovoidiol A (OSH). <sup>1</sup>H NMR (700 MHz, D<sub>2</sub>O): 3.210 (1H, dd, J = 6.9, 16.0 Hz,  $\beta$ H); 3.255 (1H, dd, J = 5.4, 16.0 Hz,  $\beta$ H); 3.707 (3H, d, J = 0.5 Hz, NCH<sub>3</sub>); 4.083 (1H, dd, J = 5.4, 6.9 Hz,  $\alpha$ H); 8.228 (1H, q, J = 0.5 Hz, Im 2H).



**Figure S2.** NMR spectrum of oxidized ovoidiol A (OSSO). <sup>1</sup>H NMR (700 MHz, D<sub>2</sub>O): 2.653 (1H, dd, J = 8.0, 15.6 Hz,  $\beta$ H); 2.836 (1H, dd, J = 6.9, 15.6 Hz,  $\beta$ H); 3.653 (3H, s, NCH<sub>3</sub>); 3.668 (1H, dd, J = 6.9, 8.0 Hz,  $\alpha$ H); 7.750 (1H, s, Im 2H).



**Figure S3.** ESI-Q-TOF mass-spectrum of CID fragments (MS/MS) of isolated parent ion with  $m/z$  202.0643 (OSH). Collision energy 35eV, positive ion mode. Wavy lines indicate the positions of the bond cleavage.



**Figure S4.** ESI-Q-TOF mass-spectrum of CID fragments (MS/MS) of isolated parent ion with  $m/z$  401.1061 (OSSO). Collision energy 35eV, positive ion mode. Wavy lines indicate the positions of the bond cleavage.