

Supplementary information:

Table S1. Ergonovine, ergine and peramine concentrations within endophyte-infected *Elymus tangutorum* from 25 sites, expressed as a proportion (%) of the total *Epichloë* alkaloid detected. The sites are listed in order of increasing elevation.

Site Province County	Elevation (m)	Proportion (%)		
		Ergonovine	Ergine	Peramine
Qinghai Ping'an	2100	3.99	6.39	89.62
Qinghai Tongren	2230	4.22	6.63	89.15
Gansu Sunan	2240	4.29	8.52	87.19
Gansu Minle	2313	5.83	8.65	85.52
Qinghai Huangzhong	2384	4.47	7.95	87.58
Qinghai Tongren	2416	4.27	8.29	87.44
Qinghai Tongren	2438	3.96	7.03	89.01
Qinghai Tongren	2462	3.77	6.19	90.04
Gansu Sunan	2546	3.90	9.91	86.19
Qinghai Tongren	2707	3.40	8.08	88.53
Gansu Sunan	2740	5.30	10.00	84.70
Qinghai Xinghai	2765	4.02	8.61	87.37
Qinghai Guinan	2842	3.65	11.41	84.95
Qinghai Zeku	2876	3.94	11.38	84.68
Gansu Sunan	2892	4.10	11.21	84.69
Gansu Minle	2922	3.74	10.03	86.23
Qinghai Zeku	3012	3.97	10.05	85.98
Qinghai Tongde	3125	4.70	4.22	91.07
Qinghai Gonghe	3230	5.66	7.86	86.48
Qinghai Xinghai	3321	4.90	5.52	89.58
Qinghai Guide	3351	5.04	8.26	86.71
Qinghai Guinan	3383	3.70	7.76	88.53
Qinghai Guinan	3392	6.10	6.50	87.40
Qinghai Maqin	3620	6.07	9.34	84.59
Qinghai Guinan	3920	4.70	3.50	91.80