

Table A6 Analyses of the genetic diversity at the population level and species level with different markers in variance *Elymus* species. Markers of studies in each species, level of genetic variance and PPB values are given.

Markers	Species	PPB %	Hep	Hes	Shannon's index (I)	Collection site	Reference
SRAP	<i>E. nutans</i>	85.86	-	0.1981	0.3223	Qinghai; Tibet; Sichuan; Gansu; Xinjiang	Miao et al. (2011)
	<i>E. nutans</i>	85.39	-	-	-	Qinghai; Tibet; Sichuan; Gansu; Xinjiang	Chen et al. (2009)
	<i>E. sibiricus</i>	87	0.1092	0.2434	0.3732	Sichuan, China	Yan et al. (2010)
Allozyme	<i>E. sibiricus</i>	71.4	0.0773	0.2528	0.3769	Hebei, China; Gansu, China; Qinghai, China;	Yan et al. (2007)
	<i>E. breviaristatus</i>	57.1	0.06	0.172	0.267	Gansu, China; Qinghai, China	Yan et al. (2007)
	<i>E. nutans</i>	71.4	0.091	0.233	0.3482	Gansu, China; Qinghai, China	Yan et al. (2007)
Microsatellite (SSR)	<i>E. breviaristatus</i>	83.42	-	-	0.2506	Sichuan, China	Gu et al. (2015)
	<i>E. sibiricus</i>	86.88	0.1296	0.2096	0.4123	Sichuan, China	Yan et al. (2010)
RAPD	<i>E. sibiricus</i>	78.65	-	0.264	0.398	Sichuan, China	Ma et al.(2012)
	<i>E.trachycaulus</i>	69	0.23	0.22	-	British Columbia, Canada	Gatdett et al.(2005)
	<i>E. nutans</i>	90.39	-	0.1791	0.3009	Qinghai; Tibet; Sichuan; Gansu; Xinjiang	Miao et al. (2011)
ISSR	<i>E. sibiricus</i>	77.2	0.181	0.274	0.345	Sichuan, China	Ma et al. (2008)
	<i>E.nutans</i>	91.4	-	-	-	Sichuan; Xinjiang; Qinghai; Gansu; Tibet	Chen et al.(2009)
	<i>E.nutans</i>	100	-	0.3438	0.516	Qinghai-Tibetan Plateau, China	Ma et al.(2014)
AFLP	<i>E.dahuricus</i>	51.5	-	0.2336	0.3387	Siberia; Primorskiy region of the Russian Far East; Kirghizstan	T.sasanuma et al.(2001)
	<i>E.tangutorum</i>	27.14	-	0.1228	0.1606	Tibet, China	T.sasanuma et al.(2001)
	<i>E.excelsus</i>	69.35	-	0.2838	0.4095	Siberia; Primorskiy region of the Russian Far East	T.sasanuma et al.(2001)
	<i>E. nutans</i>	50,7	0.298	0.429	-	Qinghai, China	Yan et al.(2010)