

Supplementary Material 1



Figure S1. The genus *Arthrophytum* Schrenk (Herbarium AA).

Supplementary Material 2

Table S1. Vouchers of the species studied.

№	Species	N	E	Administrative districts	ITS	RPS
S01	<i>A. lehmannianum</i>	47.276694	61.017146	Aktobe Region, Shalkar District, Chink Altyn-Shokysu	PV111938	PV114837
S03	<i>A. iliense</i>	43.997672	79.050463	Kerbulak District, town of Katutau, Altyn-Emel National Park	PV111939	PV114836
S04	<i>A. betpakdalense</i>	46.822778	75.008056	Karaganda Region, 1 km from the city of Balkhash	PV111940	PV114835
S05	<i>A. subulifolium</i>	43.57220281	70.91093101	Zhambyl Region, Akkol	PV111941	PV114834
S07	<i>A. balchaschense</i>	44.09619938	78.7377864	Kerbulak District, Altyn-Emel National Park	PV111942	PV114833
S08	<i>A. betpakdalense</i>	44.475670	73.502612	Zhambyl Region, Khantau Mountains	PV111943	PV114832
S11	<i>A. lehmannianum</i>	42.7247863	54.4023804	Mangystau Region	PV111944	PV114831
S12	<i>A. iliense</i>	44.17240387	79.5387366	Almaty Region, Saryozek-Jarkent highway	PV111945	PV114830
S13	<i>A. subulifolium</i>	44.475670	73.502612	Zhambyl Region, Khantau Mountains	PV111946	PV114829
S14	<i>A. subulifolium</i>	46.14324	73.59135	Karaganda Region, near the settlement of Saryshagan	PV111947	PV114828
S15	<i>A. iliense</i>	43.4616272	78.98124531	Almaty Region, along the highway towards Chundzha	PV111948	PV114827

S16	<i>A. iliense</i>	43.993033	79.241592	Kerbulak District, town of Aktau, Altyn-Emel National Park	PV111949	PV114826
S17	<i>A. lehmannianum</i>	45.6237238	63.91927218	Kyzylorda Region, near the settlement of Korkyt	PV111950	PV114825
S18	<i>A. subulifolium</i>	43.55215541	70.63914239	Zhambyl Region, Akkol	PV111951	PV114824
S20	<i>A. longibracteatum</i>	44.17240387	79.5387366	Almaty Region, Saryozek-Jarkent highway	PV111952	PV114823
S21	<i>A. longibracteatum</i>	43.46725749	78.97789255	Almaty Region, along the highway towards Chundzha	PV111953	PV114822