

**Table S1.** List of the accessions

No	Species	Country	Accession Number	Source
1	<i>A. caudatus</i>	Peru	PI 649242	USDA ARS
2	<i>A. caudatus</i>	Peru	PI 490565	USDA ARS
3	<i>A. caudatus</i>	Peru	PI 490445	USDA ARS
4	<i>A. caudatus</i>	Peru	PI 649227	USDA ARS
5	<i>A. caudatus</i>	Peru	PI 511686	USDA ARS
6	<i>A. caudatus</i>	Peru	PI 649222	USDA ARS
7	<i>A. caudatus</i>	Peru	PI 490552	USDA ARS
8	<i>A. caudatus</i>	Peru	PI 490551	USDA ARS
9	<i>A. caudatus</i>	Peru	PI 649240	USDA ARS
10	<i>A. caudatus</i>	Bolivia	PI 490459	USDA ARS
11	<i>A. caudatus</i>	Peru	PI 490519	USDA ARS
12	<i>A. caudatus</i>	Peru	PI 490562	USDA ARS
13	<i>A. caudatus</i>	Peru	PI 481960	USDA ARS
14	<i>A. caudatus</i>	Peru	PI 490559	USDA ARS
15	<i>A. caudatus</i>	Peru	PI 490538	USDA ARS
16	<i>A. caudatus</i>	Bolivia	PI 669838	USDA ARS
17	<i>A. caudatus</i>	Peru	PI 490536	USDA ARS
18	<i>A. caudatus</i>	Peru	PI 511687	USDA ARS
19	<i>A. caudatus</i>	Bolivia	Ames 15157	USDA ARS
20	<i>A. caudatus</i>	Bolivia	PI 490462	USDA ARS
21	<i>A. caudatus</i>	Bolivia	PI 642741	USDA ARS
22	<i>A. caudatus</i>	Peru	PI 490458	USDA ARS
23	<i>A. caudatus</i>	Peru	PI 490537	USDA ARS
24	<i>A. caudatus</i>	Peru	PI 490518	USDA ARS
25	<i>A. caudatus</i>	Bolivia	PI 490604	USDA ARS
26	<i>A. caudatus</i>	Peru	PI 490490	USDA ARS
27	<i>A. caudatus</i>	Peru	PI 481950	USDA ARS
28	<i>A. caudatus</i>	Peru	PI 649235	USDA ARS
29	<i>A. caudatus</i>	Peru	PI 649217	USDA ARS
30	<i>A. caudatus</i>	Peru	PI 490521	USDA ARS
31	<i>A. caudatus</i>	Peru	PI 490546	USDA ARS
32	<i>A. caudatus</i>	Peru	PI 490612	USDA ARS
33	<i>A. caudatus</i>	Peru	PI 490515	USDA ARS
34	<i>A. caudatus</i>	Peru	PI 511696	USDA ARS
35	<i>A. caudatus</i>	Peru	PI 490450	USDA ARS
36	<i>A. caudatus</i>	Argentina	PI 511679	USDA ARS
37	<i>A. caudatus</i>	Peru	PI 490552	USDA ARS
38	<i>A. caudatus</i>	Peru	PI 511683	USDA ARS

39	<i>A. caudatus</i>	Peru	Ames 15155	USDA ARS
40	<i>A. caudatus</i>	Peru	PI 490569	USDA ARS
41	<i>A. caudatus</i>	Peru	PI 490547	USDA ARS
42	<i>A. caudatus</i>	Peru	Ames 15139	USDA ARS
43	<i>A. caudatus</i>	Bolivia	PI 478403	USDA ARS
44	<i>A. caudatus</i>	Peru	PI 490423	USDA ARS
45	<i>A. caudatus</i>	Peru	PI 490534	USDA ARS
46	<i>A. caudatus</i>	Bolivia	PI 490579	USDA ARS
47	<i>A. caudatus</i>	Peru	PI 490539	USDA ARS
48	<i>A. caudatus</i>	Peru	PI 511690	USDA ARS
49	<i>A. caudatus</i>	Peru	PI 511704	USDA ARS
50	<i>A. caudatus</i>	Bolivia	PI 511681	USDA ARS
51	<i>A. caudatus</i>	Peru	PI 490553	USDA ARS
52	<i>A. caudatus</i>	Peru	PI 649245	USDA ARS
53	<i>A. caudatus</i>	Bolivia	PI 490582	USDA ARS
54	<i>A. caudatus</i>	Peru	PI 490540	USDA ARS
55	<i>A. caudatus</i>	Peru	PI 490535	USDA ARS
56	<i>A. caudatus</i>	Bolivia	PI 490583	USDA ARS
57	<i>A. caudatus</i>	Peru	PI 649236	USDA ARS
58	<i>A. caudatus</i>	Peru	PI 511688	USDA ARS
59	<i>A. caudatus</i>	Peru	PI 511689	USDA ARS
60	<i>A. caudatus</i>	Peru	PI 490524	USDA ARS
61	<i>A. caudatus</i>	Peru	PI 649228	USDA ARS
62	<i>A. caudatus</i>	Peru	PI 511753	USDA ARS
63	<i>A. caudatus</i>	Peru	PI 649234	USDA ARS
64	<i>A. caudatus</i>	Peru	PI 511694	USDA ARS
65	<i>A. caudatus</i>	Peru	PI 490511	USDA ARS
66	<i>A. caudatus</i>	Peru	PI 481957	USDA ARS
67	<i>A. caudatus</i>	Peru	Ames 15141	USDA ARS
68	<i>A. caudatus</i>	Peru	PI 511695	USDA ARS
69	<i>A. caudatus</i>	Peru	PI 490558	USDA ARS
70	<i>A. caudatus</i>	Ecuador	PI 511712	USDA ARS
71	<i>A. caudatus</i>	Peru	PI 490431	USDA ARS
72	<i>A. caudatus</i>	Peru	PI 490549	USDA ARS
73	<i>A. caudatus</i>	Peru	PI 490573	USDA ARS
74	<i>A. caudatus</i>	Peru	PI 490439	USDA ARS
75	<i>A. caudatus</i>	Peru	PI 649230	USDA ARS
76	<i>A. caudatus</i>	Peru	PI 490555	USDA ARS
77	<i>A. caudatus</i>	Peru	PI 649219	USDA ARS
78	<i>A. caudatus</i>	Bolivia	PI 568137	USDA ARS
79	<i>A. caudatus</i>	Argentina	Ames 15178	USDA ARS

80	<i>A. caudatus</i>	Bolivia	PI 490456	USDA ARS
81	<i>A. caudatus</i>	Bolivia	PI 568150	USDA ARS
82	<i>A. caudatus</i>	Peru	PI 490526	USDA ARS
83	<i>A. caudatus</i>	Peru	PI 481970	USDA ARS
84	<i>A. caudatus</i>	Bolivia	PI 490580	USDA ARS
85	<i>A. caudatus</i>	Peru	PI 511706	USDA ARS
86	<i>A. caudatus</i>	Peru	PI 649220	USDA ARS
87	<i>A. caudatus</i>	Peru	PI 490486	USDA ARS
88	<i>A. caudatus</i>	Bolivia	PI 490606	USDA ARS
89	<i>A. caudatus</i>	Bolivia	Ames 15156	USDA ARS
90	<i>A. caudatus</i>	Bolivia	PI 608018	USDA ARS
91	<i>A. caudatus</i>	Peru	PI 649244	USDA ARS
92	<i>A. caudatus</i>	Argentina	PI 511680	USDA ARS
93	<i>A. caudatus</i>	Peru	PI 481947	USDA ARS
94	<i>A. caudatus</i>	Peru	PI 481951	USDA ARS
95	<i>A. caudatus</i>	Peru	PI 490569	USDA ARS
96	<i>A. caudatus</i>	Peru	PI 490575	USDA ARS
97	<i>A. caudatus</i>	Peru	PI 481959	USDA ARS
98	<i>A. caudatus</i>	Peru	PI 649231	USDA ARS
99	<i>A. caudatus</i>	Peru	PI 511701	USDA ARS
100	<i>A. caudatus</i>	Peru	PI 481967	USDA ARS
101	<i>A. caudatus</i>	Bolivia	Ames 13860	USDA ARS
102	<i>A. caudatus</i>	Peru	Ames 5231	USDA ARS
103	<i>A. caudatus</i>	Argentina	PI 490491	USDA ARS
104	<i>A. caudatus</i>	Peru	PI 511693	USDA ARS
105	<i>A. caudatus</i>	Peru	PI 649226	USDA ARS
106	<i>A. caudatus</i>	Bolivia	PI 490457	USDA ARS
107	<i>A. caudatus</i>	Peru	PI 490561	USDA ARS
108	<i>A. caudatus</i>	Bolivia	PI 490461	USDA ARS
109	<i>A. caudatus</i>	Peru	PI 649233	USDA ARS
110	<i>A. caudatus</i>	Peru	PI 490447	USDA ARS
111	<i>A. caudatus</i>	Ecuador	PI 608019	USDA ARS
112	<i>A. caudatus</i>	Peru	PI 649237	USDA ARS
113	<i>A. caudatus</i>	Bolivia	PI 568144	USDA ARS
114	<i>A. caudatus</i>	Peru	PI 490488	USDA ARS
115	<i>A. caudatus</i>	Peru	PI 490452	USDA ARS
116	<i>A. cruentus</i>	Mexico	PI 477913	USDA ARS
117	<i>A. cruentus</i>	Peru	PI 511713	USDA ARS
118	<i>A. cruentus</i>	Mexico	PI 576482	USDA ARS
119	<i>A. cruentus</i>	Mexico	PI 643037	USDA ARS
120	<i>A. cruentus</i>	Mexico	PI 477914	USDA ARS

121	<i>A. cruentus</i>	Mexico	PI 511723	USDA ARS
122	<i>A. cruentus</i>	Mexico	PI 649509	USDA ARS
123	<i>A. cruentus</i>	Mexico	PI 606798	USDA ARS
124	<i>A. cruentus</i>	Mexico	PI 649514	USDA ARS
125	<i>A. cruentus</i>	Brazil	PI 667165	USDA ARS
126	<i>A. cruentus</i>	Guatemala	PI 451826	USDA ARS
127	<i>A. cruentus</i>	Mexico	Ames 5552	USDA ARS
128	<i>A. cruentus</i>	USA	PI 606767	USDA ARS
129	<i>A. cruentus</i>	Mexico	PI 511876	USDA ARS
130	<i>A. cruentus</i>	Venezuela	PI 665286	USDA ARS
131	<i>A. cruentus</i>	Argentina	PI 636182	USDA ARS
132	<i>A. cruentus</i>	Mexico	PI 662284	USDA ARS
133	<i>A. cruentus</i>	Mexico	PI 643058	USDA ARS
134	<i>A. cruentus</i>	USA	PI 515959	USDA ARS
135	<i>A. cruentus</i>	Mexico	PI 643039	USDA ARS
136	<i>A. cruentus</i>	Mexico	PI 649524	USDA ARS
137	<i>A. cruentus</i>	Guatemala	PI 511717	USDA ARS
138	<i>A. cruentus</i>	Peru	PI 511714	USDA ARS
139	<i>A. cruentus</i>	Mexico	Ames 15191	USDA ARS
140	<i>A. cruentus</i>	USA	PI 658731	USDA ARS
141	<i>A. cruentus</i>	Mexico	PI 658728	USDA ARS
142	<i>A. cruentus</i>	Mexico	PI 643042	USDA ARS
143	<i>A. cruentus</i>	Mexico	PI 643063	USDA ARS
144	<i>A. cruentus</i>	Mexico	PI 576481	USDA ARS
145	<i>A. cruentus</i>	Mexico	PI 649609	USDA ARS
146	<i>A. cruentus</i>	Mexico	Ames 2240	USDA ARS
147	<i>A. cruentus</i>	Guatemala	PI 433228	USDA ARS
148	<i>A. cruentus</i>	Mexico	PI 643049	USDA ARS
149	<i>A. cruentus</i>	Germany	Baernkrafft	Commercial
150	'hybrid' group	Peru	PI 511684	USDA ARS
151	'hybrid' group	USA	PI 568179	USDA ARS
152	'hybrid' group	Mexico	PI 604564	USDA ARS
153	'hybrid' group	Peru	PI 490430	USDA ARS
154	'hybrid' group	Peru	PI 490453	USDA ARS
155	'hybrid' group	Bolivia	PI 490586	USDA ARS
156	'hybrid' group	Peru	PI 490424	USDA ARS
157	'hybrid' group	Mexico	PI 604566	USDA ARS
158	'hybrid' group	Peru	PI 511752	USDA ARS
159	'hybrid' group	Mexico	PI 604571	USDA ARS
160	'hybrid' group	Guatemala	Ames 21996	USDA ARS
161	'hybrid' group	Peru	PI 490449	USDA ARS

162	'hybrid' group	Peru	PI 490441	USDA ARS
163	'hybrid' group	Bolivia	PI 511734	USDA ARS
164	'hybrid' group	Bolivia	PI 511735	USDA ARS
165	'hybrid' group	Peru	PI 511733	USDA ARS
166	<i>A. hybridus</i>	Ecuador	PI 490681	USDA ARS
167	<i>A. hybridus</i>	Ecuador	PI 490689	USDA ARS
168	<i>A. hybridus</i>	Peru	Ames 5232	USDA ARS
169	<i>A. hybridus</i>	Peru	PI 490740	USDA ARS
170	<i>A. hybridus</i>	Ecuador	PI 490716	USDA ARS
171	<i>A. hybridus</i>	Ecuador	PI 490682	USDA ARS
172	<i>A. hybridus</i>	Ecuador	PI 490731	USDA ARS
173	<i>A. hybridus</i>	Ecuador	PI 490739	USDA ARS
174	<i>A. hybridus</i>	Ecuador	PI 490684	USDA ARS
175	<i>A. hybridus</i>	Ecuador	PI 490715	USDA ARS
176	<i>A. hybridus</i>	Ecuador	PI 490676	USDA ARS
177	<i>A. hybridus</i>	Guatemala	PI 667158	USDA ARS
178	<i>A. hybridus</i>	Mexico	PI 604574	USDA ARS
179	<i>A. hybridus</i>	Ecuador	PI 490664	USDA ARS
180	<i>A. hybridus</i>	Ecuador	PI 490685	USDA ARS
181	<i>A. hybridus</i>	Peru	PI 490489	USDA ARS
182	<i>A. hybridus</i>	Ecuador	PI 490722	USDA ARS
183	<i>A. hybridus</i>	Mexico	PI 511724	USDA ARS
184	<i>A. hybridus</i>	Ecuador	PI 490679	USDA ARS
185	<i>A. hybridus</i>	Ecuador	PI 490670	USDA ARS
186	<i>A. hybridus</i>	Ecuador	PI 667156	USDA ARS
187	<i>A. hybridus</i>	Ecuador	PI 490703	USDA ARS
188	<i>A. hybridus</i>	Ecuador	PI 490721	USDA ARS
189	<i>A. hybridus</i>	Ecuador	PI 511754	USDA ARS
190	<i>A. hybridus</i>	Ecuador	PI 490678	USDA ARS
191	<i>A. hybridus</i>	Mexico	PI 604568	USDA ARS
192	<i>A. hybridus</i>	Guatemala	Ames 22001	USDA ARS
193	<i>A. hybridus</i>	Ecuador	PI 490677	USDA ARS
194	<i>A. hybridus</i>	Bolivia	Ames 5335	USDA ARS
195	<i>A. hybridus</i>	Mexico	PI 604582	USDA ARS
196	<i>A. hybridus</i>	Ecuador	PI 490680	USDA ARS
197	<i>A. hypochondriacus</i>	Mexico	PI 604595	USDA ARS
198	<i>A. hypochondriacus</i>	Mexico	PI 649607	USDA ARS
199	<i>A. hypochondriacus</i>	Mexico	PI 649623	USDA ARS
200	<i>A. hypochondriacus</i>	Mexico	PI 649565	USDA ARS
201	<i>A. hypochondriacus</i>	Mexico	PI 643070	USDA ARS
202	<i>A. hypochondriacus</i>	Mexico	PI 649633	USDA ARS

203	<i>A. hypochondriacus</i>	Mexico	PI 649529	USDA ARS
204	<i>A. hypochondriacus</i>	Mexico	PI 643041	USDA ARS
205	<i>A. hypochondriacus</i>	Mexico	PI 477916	USDA ARS
206	<i>A. hypochondriacus</i>	Chile	Ames 5355	USDA ARS
207	<i>A. hypochondriacus</i>	USA	PI 568127	USDA ARS
208	<i>A. hypochondriacus</i>	Mexico	PI 649537	USDA ARS
209	<i>A. hypochondriacus</i>	Mexico	PI 643067	USDA ARS
210	<i>A. hypochondriacus</i>	Mexico	PI 649532	USDA ARS
211	<i>A. hypochondriacus</i>	Mexico	Ames 2215	USDA ARS
212	<i>A. hypochondriacus</i>	Mexico	PI 649559	USDA ARS
213	<i>A. hypochondriacus</i>	Mexico	PI 649575	USDA ARS
214	<i>A. hypochondriacus</i>	Mexico	PI 649595	USDA ARS
215	<i>A. hypochondriacus</i>	Puerto Rico	Ames 5149	USDA ARS
216	<i>A. hypochondriacus</i>	Mexico	PI 633589	USDA ARS
217	<i>A. hypochondriacus</i>	Mexico	Ames 5457	USDA ARS
218	<i>A. hypochondriacus</i>	Mexico	PI 649544	USDA ARS
219	<i>A. hypochondriacus</i>	Mexico	PI 604587	USDA ARS
220	<i>A. hypochondriacus</i>	Mexico	PI 643036	USDA ARS
221	<i>A. hypochondriacus</i>	Mexico	PI 619247	USDA ARS
222	<i>A. hypochondriacus</i>	Brazil	Ames 5690	USDA ARS
223	<i>A. hypochondriacus</i>	Mexico	PI 649602	USDA ARS
224	<i>A. hypochondriacus</i>	Mexico	PI 649535	USDA ARS
225	<i>A. hypochondriacus</i>	Mexico	Ames 2085	USDA ARS
226	<i>A. hypochondriacus</i>	Mexico	PI 649602	USDA ARS
227	<i>A. hypochondriacus</i>	Mexico	PI 643074	USDA ARS
228	<i>A. hypochondriacus</i>	Mexico	PI 604559	USDA ARS
229	<i>A. hypochondriacus</i>	Mexico	PI 604581	USDA ARS
230	<i>A. hypochondriacus</i>	Mexico	PI 649587	USDA ARS
231	<i>A. hypochondriacus</i>	Mexico	PI 511731	USDA ARS
232	<i>A. quitensis</i>	Ecuador	PI 511747	USDA ARS
233	<i>A. quitensis</i>	Brazil	PI 652428	USDA ARS
234	<i>A. quitensis</i>	Ecuador	PI 490720	USDA ARS
235	<i>A. quitensis</i>	Ecuador	PI 490673	USDA ARS
236	<i>A. quitensis</i>	Peru	PI 490466	USDA ARS
237	<i>A. quitensis</i>	Ecuador	PI 511737	USDA ARS
238	<i>A. quitensis</i>	Ecuador	PI 511739	USDA ARS
239	<i>A. quitensis</i>	Brazil	PI 652422	USDA ARS
240	<i>A. quitensis</i>	Ecuador	PI 490705	USDA ARS
241	<i>A. quitensis</i>	Peru	PI 649246	USDA ARS
242	<i>A. quitensis</i>	Ecuador	PI 511745	USDA ARS
243	<i>A. quitensis</i>	Bolivia	PI 511736	USDA ARS

244	<i>A. quitensis</i>	Peru	Ames 5342	USDA ARS
245	<i>A. quitensis</i>	Argentina	Ames 21666	USDA ARS
246	<i>A. quitensis</i>	Ecuador	PI 511738	USDA ARS
247	<i>A. quitensis</i>	Peru	PI 511751	USDA ARS
248	<i>A. quitensis</i>	Brazil	PI 652426	USDA ARS
249	<i>A. quitensis</i>	Ecuador	PI 511749	USDA ARS
250	<i>A. quitensis</i>	Argentina	Ames 5334	USDA ARS
251	<i>A. quitensis</i>	Ecuador	Ames 5247	USDA ARS
252	<i>A. quitensis</i>	Bolivia	PI 568154	USDA ARS
253	<i>A. quitensis</i>	Ecuador	PI 490709	USDA ARS
254	<i>A. quitensis</i>	Ecuador	PI 511741	USDA ARS

**Table S2.** Accessions that did not flower

No	Species	Country	Accession Number	Plot
1	<i>A. hypochondriacus</i>	Mexico	PI 649602	714
2	‘hybrid’ group	Mexico	PI 604571	725
3	<i>A. hybridus</i>	Mexico	PI 604568	1010
4	<i>A. hypochondriacus</i>	Mexico	PI 649587	1014
5	<i>A. hybridus</i>	Guatemala	Ames 22001	1016
6	<i>A. hybridus</i>	Mexico	PI 604582	1027

**Table S3.** Photoperiod-insensitive accessions that are of non-Central American origin but set seed

No	Species	Country	Accession Number/Name	Plot	Flowering time (day)
1	<i>A. quitensis</i>	Brazil	PI 652428	118	64
2	<i>A. cruentus</i>	Germany	Bärnkrafft	125	71
3	‘hybrid’ group	USA	PI 568179	216	65
4	<i>A. hypochondriacus</i>	USA	PI 568127	315	71
5	<i>A. cruentus</i>	USA	PI 606767	424	76
6	<i>A. quitensis</i>	Brazil	PI 652422	428	60
7	<i>A. cruentus</i>	Argentina	PI 636182	517	71
8	‘hybrid’ group	Peru	PI 511752	717	50
9	<i>A. cruentus</i>	Peru	PI 658731	811	71
10	<i>A. quitensis</i>	Peru	PI 511751	817	50

**Table S4.** Mild photoperiod-sensitive accessions that are of non-Central American origin but set seed

No	Species	Country	Accession Number	Plot	Flowering time (day)
1	<i>A. hypochondriacus</i>	Chile	Ames 5355	309	110
2	<i>A. cruentus</i>	Brazil	PI 667165	407	97
3	<i>A. cruentus</i>	Venezuela	PI 665286	508	110
4	<i>A. cruentus</i>	USA	PI 515959	609	82
5	<i>A. hypochondriacus</i>	Brazil	Ames 5690	711	102
6	<i>A. cruentus</i>	Peru	PI 511714	718	110