

ITA  
>INKATERRA<  
ASOCIACIÓN

>INKATERRA<  
MACHU PICCHU PUEBLO HOTEL  
PERU



CALENDARIO DE FLORACIÓN EN  
INKATERRA MACHU PICCHU PUEBLO HOTEL

Flowering calendar

# CALENDARIO DE FLORACIÓN EN INKATERRA MACHU PICCHU PUEBLO HOTEL

Flowering calendar

Número Number	Especie / Specie	Mes / Month											
		J	F	M	A	M	J	J	A	S	O	N	D
1	<i>Aa aff. rosei</i> Ames			•	•					•	•	•	•
2	<i>Ada brachypus</i> (Rchb. f.) N.H. Williams			•	•				•	•	•	•	
3	<i>Ada peruviana</i> D.E. Benn. Et Christenson	•	•							•	•	•	
4	<i>Ada aff. euodes</i> (Rchb. f.) D.E. Benn. Et Christenson	•	•	•				•		•	•	•	
5	<i>Altensteinia boliviensis</i> Rolfe ex Rusby											•	
6	<i>Altensteinia fimbriata</i> Kunth			•	•	•	•				•	•	
7	<i>Anathallis carnosifolia</i> (C. Schweinf.) Pridgeon Et M.W. Chase (Syn. <i>Pleurothallis carnosifolia</i> C. Schweinf.)	•	•										
8	<i>Anathallis ramulosa</i> (Lindl.) Pridgeon Et M.W. Chase										•	•	
9	<i>Anathallis rubens</i> (Lindley) Pridgeon Et M.W. Chase (Syn. <i>Pleurothallis excisa</i> C. Schweinf.)		•	•	•	•				•	•	•	
10	<i>Ancipitia dunstervillei</i> (Foldats) Luer			•	•	•	•		•				
11	<i>Andinia vestigipetala</i> (Luer) Pridgeon Et M.W. Chase (Syn. <i>Pleurothallis vestigipetala</i> Luer)			•									
12	<i>Anguloa virginalis</i> Lindley							•	•	•	•	•	•
13	<i>Aspidogyne</i> sp.									•			
14	<i>Barbosella cucullata</i> (Lindl.) Schltr.	•	•		•						•	•	•
15	<i>Barbosella aff. cucullata</i> (Lindl.) Schltr.	•	•										
16	<i>Barbosella prorepens</i> (Rchb. f.) Schltr.	•	•	•		•	•				•	•	•
17	<i>Baskervilla machupicchuensis</i> Nauray Et Christenson	•	•	•	•								•
18	<i>Baskervilla</i> sp.		•	•	•								
19	<i>Bletia campanulata</i> La Llave Et Lex.	•	•			•	•						
20	<i>Bletia catenulata</i> Ruiz Et Pav.								•				
21	<i>Brachionidium carmeniae</i> Luer								•	•	•	•	
22	<i>Brachionidium demissum</i> Luer Et C.Soto								•	•			
23	<i>Brachionidium elegans</i> Luer Et Hirtz	•	•							•	•	•	•
24	<i>Brachionidium ephemerum</i> Luer Et Hirtz										•	•	
25	<i>Brachionidium inkaterrense</i> Luer Et C.Soto							•	•		•		
26	<i>Brachionidium machupicchuense</i> Christenson	•	•	•	•							•	•
27	<i>Brachionidium</i> sp.1											•	•
28	<i>Brassia thyrsoides</i> Rchb. f.	•	•	•							•	•	•
29	<i>Brassia cf. wagneri</i> Rchb. f.					•	•				•	•	
30	<i>Buchtienia rosea</i> Garay							•	•	•			
31	<i>Bulbophyllum</i> sp.1					•	•						
32	<i>Bulbophyllum</i> sp.2		•										
33	<i>Catasetum</i> sp.		•										
34	<i>Chloraea reticulata</i> Schltr.												
35	<i>Comparettia falcata</i> Poepp. Et Endl.	•	•								•	•	•
36	<i>Comparettia janeae</i> (Dodson Et Vásquez) M.W. Chase Et N.H. Williams	•	•	•	•								
37	<i>Comparettia coccinea</i> Lindl.				•								
38	<i>Comparettia rubriflora</i> (Senghas) M.W. Chase Et N.H. Williams	•	•		•	•			•	•	•	•	•

Número Number	Especie / Specie	Mes / Month											
		J	F	M	A	M	J	J	A	S	O	N	D
39	<i>Compartmentia vallyana</i> Collantes & G.Gerlach, sp. nov.	•	•	•							•	•	•
40	<i>Cranichis calva</i> (Kraenzl.) Schltr.	•	•	•									
41	<i>Cranichis ciliata</i> (Kunth) Kunth			•	•	•							
42	<i>Cranichis garayana</i> Dodson & R. Vásquez			•	•								
43	<i>Cryptocentrum inaequisepalum</i> C. Schweinf.	•	•									•	•
44	<i>Cyclopogon peruvianus</i> (C. Presl) Schltr.			•	•	•	•	•			•	•	
45	<i>Cyclopogon</i> sp.1												
46	<i>Cyclopogon</i> sp.2							•					
47	<i>Cyrtiodorchis</i> aff. <i>rhomboglossa</i> (F. Lehm. & Kraenzl.) Rauschert	•	•	•			•						
48	<i>Cyrtochilum aureum</i> (Lindl.) Senghas (Syn. <i>Odontoglossum aureum</i> (Lindl.) Rchb.f.)									•	•		
49	<i>Cyrtochilum auropurpleum</i> (Rchb. f.) Dalström	•	•	•	•								
50	<i>Cyrtochilum carinatum</i> (Königer & Deburghgr.) Dalström, comb. nov	•	•	•	•								
51	<i>Cyrtochilum cimiciferum</i> (Rchb. f.) Dalström	•	•	•	•					•	•	•	•
52	<i>Cyrtochilum</i> aff. <i>cimiciferum</i> (Rchb. f.) Dalström	•	•	•	•						•	•	•
53	<i>Cyrtochilum fractum</i> (Rchb. f.) Kraenzl.					•	•	•			•	•	•
54	<i>Cyrtochilum graminoides</i> Dalström, nom. nov.	•	•		•	•				•	•	•	•
55	<i>Cyrtochilum ligulatum</i> (Ruiz & Pav.) Mansf. ex Dalström (Ex <i>Cyrtochilum depauperatum</i> (F.Lehm. & Kraenzl.) Kraenzl.)												
56	<i>Cyrtochilum</i> aff. <i>methonica</i> (Rchb. f.) Kraenzl.		•										
57	<i>Cyrtochilum minax</i> (Rchb. f.) Kraenzl.			•	•	•			•	•	•	•	
58	<i>Cyrtochilum myanthum</i> (Lindl.) Kraenzl.	•	•	•	•						•	•	•
59	<i>Cyrtochilum mystacinum</i> Lindl.								•	•	•		
60	<i>Cyrtochilum pusillum</i> (C. Schweinf.) Dalström				•								
61	<i>Cyrtochilum rhodoneurum</i> (Rchb. f.) Dalström (Syn. <i>Neodyras rhodoneura</i> Rchb. f.)	•	•	•							•		
62	<i>Cyrtochilum sharoniae</i> Dalström N.R.S.	•	•	•							•	•	•
63	<i>Cyrtochilum tetraplasium</i> (Rchb. f.) Dalström	•						•	•	•	•		•
64	<i>Cyrtochilum volubile</i> Poepp. & Endl.	•	•	•								•	•
65	<i>Cyrtopodium</i> aff. <i>virens</i> Pabst & Dungs				•				•	•			
66	<i>Dichaea</i> aff. <i>laxa</i> (Ruiz & Pav.) Poepp. & Endl.	•	•	•				•	•	•	•	•	
67	<i>Dichaea morrisii</i> Fawc. & Rendle			•									
68	<i>Dichaea muricata</i> (Sw.) Lindl.	•	•		•	•		•	•	•		•	
69	<i>Dichaea</i> sp.1												
70	<i>Draconanthes aberrans</i> (Schltr.) Luer										•		
71	<i>Echinosepala aspasicensis</i> (Rchb. f.) Pridgeon & M.W. Chase											•	•
72	<i>Elleanthus amethystinus</i> (Poepp. & Endl.) Rchb. f.		•	•	•						•	•	
73	<i>Elleanthus aurantiacus</i> (Lindl.) Rchb. f.										•	•	
74	<i>Elleanthus bambusaceus</i> Schltr.												
75	<i>Elleanthus</i> aff. <i>capitatus</i> (Poepp. & Endl.) Rchb. f.	•	•	•	•						•	•	•

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		J	F	M	A	M	J	J	A	S	O	N	D
76	<i>Elleanthus conifer</i> (Rchb. f. & Warsz.) Rchb. f.	•	•	•								•	•
77	<i>Elleanthus longibracteatus</i> (Lindl. ex Griseb.) Fawc.	•	•	•	•				•	•	•	•	•
78	<i>Elleanthus</i> sp.1	•	•										
79	<i>Elleanthus</i> sp.2												
80	<i>Epidendrum althaniorum</i> Hágsater & Collantes, sp. nov.				•	•	•			•	•		
81	<i>Epidendrum amaruenae</i> Hágsater, B. Collantes & E. Santiago	•	•	•									•
82	<i>Epidendrum ampliracemum</i> C. Schweinf.		•								•		
83	<i>Epidendrum aquaticoides</i> C. Schweinf.												
84	<i>Epidendrum ardens</i> Kraenzl.						•	•		•	•	•	
85	<i>Epidendrum astetei</i> Hágsater, Collantes & Mormontoy		•										
86	<i>Epidendrum avicula</i> Lindl.												
87	<i>Epidendrum bambusiforme</i> Kraenzl.		•	•	•			•	•	•			
88	<i>Epidendrum birostratum</i> C. Schweinf.				•			•					
89	<i>Epidendrum boekei</i> Hágsater	•	•	•	•	•	•						
90	<i>Epidendrum calanthum</i> Rchb. f. & Warsz.	•	•	•	•								
91	<i>Epidendrum ciliare</i> Linnaeus				•	•							
92	<i>Epidendrum colombianum</i> A.D. Hawkes ( <i>Ex Epidendrum anderssonii</i> Hágsater & Dodson)			•	•								
93	<i>Epidendrum excisum</i> Lindl.										•	•	•
94	<i>Epidendrum elatum</i> C. Schweinf.					•	•						
95	<i>Epidendrum frechetteanum</i> D.E. Benn. & Christenson	•											•
96	<i>Epidendrum frutex</i> Rchb. f.								•	•	•	•	•
97	<i>Epidendrum cf. fujimorianum</i> Bennett & Christenson							•	•	•	•	•	•
98	<i>Epidendrum funkii</i> Reichenbach	•	•	•	•	•	•	•	•				
99	<i>Epidendrum goodspeedianum</i> A.D. Hawkes	•	•	•	•								
100	<i>Epidendrum aff. haenkeanum</i> C. Presl		•										
101	<i>Epidendrum herreranum</i> C. Schweinf.				•	•							
102	<i>Epidendrum isaucapitellatum</i> Hágsater & E.Santiago			•	•								
103	<i>Epidendrum isomerum</i> Schltr.										•	•	•
104	<i>Epidendrum jajense</i> Rchb. f.					•	•						
105	<i>Epidendrum lanioides</i> Schltr.	•											•
106	<i>Epidendrum aff. macrostachyum</i> Lindl.								•	•	•	•	•
107	<i>Epidendrum mancum</i> Lindl.							•	•	•	•	•	•
108	<i>Epidendrum mesomicron</i> Lindl.	•	•	•	•	•	•	•					
109	<i>Epidendrum orbiculatum</i> C.Schweinf.	•	•	•	•								
110	<i>Epidendrum pachacutegianum</i> Hágsater & B. Collantes		•										
111	<i>Epidendrum aff. pachyphilum</i> Kraenzl.			•	•	•	•						
112	<i>Epidendrum paniculourubambense</i> Hágsater et E.Santiago									•			
113	<i>Epidendrum pseudogramineum</i> D.E. Benn. & Christenson		•	•		•							
114	<i>Epidendrum quispei</i> Hágsater & B. Collantes	•	•	•	•						•	•	•
115	<i>Epidendrum refractoides</i> C. Schweinf.	•	•	•	•	•						•	•
116	<i>Epidendrum retrosepalum</i> Hágsater, Ric. Fernández & E. Santiago		•	•	•				•	•			



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		J	F	M	A	M	J	J	A	S	O	N	D
159	<i>Habenaria</i> sp.2		•	•									
160	<i>Hofmeisterella eumicroscopica</i> (Rchb. f.) Rchb. f.			•	•		•	•	•				
161	<i>Ixyophora aurantiaca</i> (Senghas Et G.Gerlach) Dressler	•							•	•	•	•	•
162	<i>Kefersteinia koechlinorum</i> Christenson			•	•			•	•	•	•	•	•
163	<i>Kefersteinia koechlinorum</i> Christenson (alba)							•	•				
164	<i>Kefersteinia</i> sp.									•			
165	<i>Laelia weberbaueriana</i> (Kraenzl.) C. Schweinf.	•											
166	<i>Lankesteriana caudatipetala</i> (C.Schweinf.) Karremans (Syn. <i>Pleurothallis caudatipetala</i> C. Schweinf.)	•	•	•	•	•	•	•	•	•	•	•	•
167	<i>Lepanthes acarina</i> Luer		•		•								
168	<i>Lepanthes alticola</i> C. Schweinf.	•	•	•	•	•			•	•	•	•	•
169	<i>Lepanthes caudatisepala</i> C. Schweinf.	•	•		•	•	•			•	•		•
170	<i>Lepanthes longipedicellata</i> C. Schweinf.		•	•	•	•				•	•	•	
171	<i>Lepanthes menatoi</i> Luer Et R. Vásquez	•	•	•	•	•	•	•	•	•	•	•	•
172	<i>Lepanthes miraculum</i> Luer Et R. Vásquez	•	•		•					•	•	•	•
173	<i>Lepanthes pteropogon</i> Rchb. f.	•	•	•	•	•	•	•	•	•	•	•	•
174	<i>Lepanthes pubicaulis</i> C. Schweinf.	•	•	•	•	•	•	•	•	•	•	•	•
175	<i>Lepanthes pumila</i> C. Schweinf.												
176	<i>Lepanthes</i> sp.1	•	•	•	•	•			•	•	•	•	
177	<i>Lepanthes</i> sp.4	•			•	•					•	•	
178	<i>Lepanthes</i> sp.5			•									
179	<i>Lepanthopsis</i> sp.				•								
180	<i>Liparis elegantula</i> Kraenzl.	•			•								
181	<i>Liparis laticuneata</i> C. Schweinf.			•	•	•							
182	<i>Liparis ramosa</i> Poepp. Et Endl.	•	•	•									
183	<i>Lockhartia longifolia</i> (Lindl.) Schltr.	•	•	•	•	•	•	•	•	•	•	•	•
184	<i>Lycaste macrophylla</i> (Poepp. Et Endl.) Lindl.	•							•	•	•	•	•
185	<i>Malaxis andicola</i> (Ridl.) Kuntze									•	•		•
186	<i>Masdevallia antonii</i> Königer	•	•	•	•	•	•			•	•	•	
187	<i>Masdevallia barlaeana</i> Rchb. f.		•	•	•	•	•	•			•	•	
188	<i>Masdevallia instar</i> Luer Et Andreetta				•	•		•	•				
189	<i>Masdevallia karinae</i> Nauray ex Luer	•	•			•					•	•	•
190	<i>Masdevallia marizae</i> Luer Et Rolando										•		
191	<i>Masdevallia X splendida</i> Rchb.f.				•	•							
192	<i>Masdevallia veitchiana</i> Rchb. f.	•	•	•	•	•	•	•	•	•	•	•	•
193	<i>Maxillaria alpestris</i> Lindl.	•	•	•	•	•	•	•	•	•	•	•	•
194	<i>Maxillaria brachypetala</i> Schltr. (Ex <i>Maxillaria machupicchuensis</i> Christenson Et Salinas)	•					•			•	•	•	•
195	<i>Maxillaria calantha</i> Schltr.	•	•	•	•	•	•	•	•	•	•	•	•
196	<i>Maxillaria cuzcoensis</i> C. Schweinf.	•					•	•				•	
197	<i>Maxillaria deniseae</i> Collantes Et Christenson	•		•	•						•	•	•
198	<i>Maxillaria equitans</i> (Schltr.) Garay												
199	<i>Maxillaria floribunda</i> Lindl.	•						•	•	•	•	•	
200	<i>Maxillaria funicaulis</i> C. Schweinf.	•	•	•				•	•		•	•	•



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		J	F	M	A	M	J	J	A	S	O	N	D
242	<i>Pachyphyllum</i> sp.1												
243	<i>Pachyphyllum</i> sp 2	•	•						•				
244	<i>Pelexia maculata</i> Rolfe									•	•		
245	<i>Pelexia saltensis</i> (Griseb.) Schltr.							•	•				
246	<i>Phragmipedium caudatum</i> (Lindl.) Rolfe	•	•	•	•	•	•	•		•	•		
247	<i>Pityphyllum laricinum</i> (Kraenzl.) Schltr.												
248	<i>Pityphyllum</i> sp.1			•	•								
249	<i>Platystele oxyglossa</i> (Schltr.) Garay	•	•	•	•	•	•	•	•	•	•	•	•
250	<i>Pleurothallis cf. chamensis</i> Lindl.			•	•			•		•	•		
251	<i>Pleurothallis cordata</i> (Ruiz & Pav.) Lindl.	•	•	•	•	•	•	•	•	•	•	•	•
252	<i>Pleurothallis coriacardia</i> Rchb. f.	•	•	•	•	•		•	•	•	•	•	•
253	<i>Pleurothallis demissa</i> Luer & R. Vásquez		•	•	•	•							
254	<i>Pleurothallis dodsonii</i> Luer			•	•								
255	<i>Pleurothallis hjertingii</i> Luer		•	•	•								
256	<i>Pleurothallis lamellaris</i> Lindl.	•	•	•	•							•	
257	<i>Pleurothallis lindenii</i> Lindl.	•	•	•	•	•							
258	<i>Pleurothallis loranthophylla</i> Rchb. f.		•	•	•	•	•						•
259	<i>Pleurothallis otopetalum</i> Schltr.	•	•	•	•	•	•	•	•	•	•	•	•
260	<i>Pleurothallis phalangifera</i> (C. Presl) Rchb. f.												
261	<i>Pleurothallis aff. phyllocardioides</i> Schltr.	•	•	•	•			•	•	•	•	•	•
262	<i>Pleurothallis revoluta</i> (Ruiz & Pav.) Garay	•	•	•	•								
263	<i>Pleurothallis ruberrima</i> Lindl.	•	•	•	•	•			•	•	•	•	•
264	<i>Pleurothallis aff. ruberrima</i> Lindl.	•										•	
265	<i>Pleurothallis scabrata</i> Lindl. (Ex <i>Pleurothallis restrepioides</i> Lindl.)	•	•	•		•	•			•	•	•	•
266	<i>Pleurothallis aff. setigera</i> Lindl.	•	•	•	•			•	•	•	•	•	•
267	<i>Pleurothallis aff. strobilifera</i> F. Lehm. & Kraenzl.			•	•			•	•				
268	<i>Pleurothallis vargasii</i> C.Schweinf.	•	•	•	•	•							
269	<i>Pleurothallis xanthochlora</i> Rchb. f.	•	•	•	•	•		•	•	•			•
270	<i>Pleurothallis</i> sp.1	•	•	•								•	•
271	<i>Pleurothallis</i> sp.2			•	•								
272	<i>Pleurothallis</i> sp.3												•
273	<i>Pleurothallis</i> sp.5			•	•								
274	<i>Pleurothallis</i> sp.8				•	•							
275	<i>Pleurothallis</i> sp.9		•	•									
276	<i>Pleurothallis</i> sp.10					•	•				•		
277	<i>Pleurothallis</i> sp.11			•					•	•			
278	<i>Pleurothallis</i> sp.12			•	•			•		•			
279	<i>Pleurothallis</i> sp.13				•								
280	<i>Pleurothallis</i> sp.14					•							
281	<i>Pleurothallis</i> sp.15	•											
282	<i>Pleurothallis</i> sp.16												
283	<i>Pleurothallopsis tubulosa</i> (Lindley) Pridgeon & M.W. Chase									•			
284	<i>Pleurothallopsis</i> sp.1									•			





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		J	F	M	A	M	J	J	A	S	O	N	D
329	<i>Stelis</i> sp.11												
330	<i>Stelis</i> sp.12												
331	<i>Stenia angustilabia</i> D.E. Benn. & Christenson	•			•	•	•	•	•	•	•	•	•
332	<i>Stenorrhynchos cernuum</i> Lindl.					•	•	•	•				
333	<i>Sudamerlycaste fimbriata</i> (Poepp. & Endl.) Archila	•	•			•		•		•	•	•	•
334	<i>Sudamerlycaste grandis</i> (Fowlie ex Oakeley) Archila	•	•	•	•								•
335	<i>Sudamerlycaste heynderyxii</i> (E. Morren) Archila	•	•	•	•	•	•		•				•
336	<i>Sudamerlycaste jamesiorum</i> (Oakeley) Archila	•	•	•	•	•							
337	<i>Sudamerlycaste locusta</i> (Rchb. f.) Archila	•			•		•	•	•	•	•	•	•
338	<i>Sudamerlycaste</i> sp. (híbrido natural <i>S.heynderyxii</i> X <i>S. jamesiorum</i> )	•	•	•	•								
339	<i>Telipogon antisuyuensis</i> Nauray & A.Galán			•	•	•	•		•		•		
340	<i>Telipogon austroperuvianus</i> Nauray & A.Galán ( <i>Telipogon</i> aff. <i>semipictus</i> )			•	•								
341	<i>Telipogon bowmanii</i> Rchb. f.	•	•	•					•	•	•	•	•
342	<i>Telipogon bennettii</i> (Dodson & R. Escobar) N.H. Williams & Dressler			•									
343	<i>Telipogon machupicchuensis</i> Nauray & Christenson						•	•					
344	<i>Telipogon koechlinorum</i> Collantes & C. Martel, sp. nov.			•	•					•	•		
345	<i>Telipogon phalaenopsis</i> Braas			•									
346	<i>Telipogon phuyupatamarcensis</i> W. Galiano, P. Nuñez & A. Tupayachi						•	•					
347	<i>Telipogon pogonostalix</i> Rchb.f.		•	•	•	•	•	•		•	•	•	•
348	<i>Telipogon pogonostalix</i> Rchb. f. (semialba)	•		•	•	•	•	•		•	•	•	•
349	<i>Telipogon selbyanus</i> N.H. Williams & Dressler			•	•	•	•						
350	<i>Telipogon</i> sp.2									•			
351	<i>Trichoceros antennifer</i> (Bonpl.) Kunth	•	•									•	
352	<i>Trichopilia fragrans</i> (Lindl.) Rchb. f.	•	•	•	•								•
353	<i>Trichopilia albida</i> H. Wendl		•	•								•	
354	<i>Trichosalpinx acremona</i> (Luer) Luer			•	•								
355	<i>Trichosalpinx carmeniae</i> Luer											•	•
356	<i>Trichosalpinx chamaelepanthes</i> (Rchb. f.) Luer								•	•	•	•	
357	<i>Trichosalpinx</i> aff. <i>memor</i> (Rchb. f.) Luer			•	•	•	•		•	•	•		
358	<i>Trichosalpinx ligulata</i> Luer & Hirtz	•										•	•
359	<i>Trichosalpinx patula</i> Luer	•		•	•	•	•	•	•	•	•	•	•
360	<i>Trichosalpinx reticulata</i> Thoerle & C.Soto, sp. nov.	•	•		•								
361	<i>Trichosalpinx</i> sp.2	•	•	•	•	•	•	•	•	•	•	•	•
362	<i>Trichosalpinx</i> sp.4			•	•								
363	<i>Trichosalpinx</i> sp.5				•								
364	<i>Vasqueziella boliviana</i> Dodson							•	•	•	•		
365	<i>Xylobium bractescens</i> (Lindl.) Kraenzl.	•	•	•	•	•						•	
366	<i>Xylobium elatum</i> Rolfe								•	•	•	•	
367	<i>Xylobium miliaceum</i> (Rchb.f.) Rolfe						•	•	•	•	•	•	•
368	<i>Xylobium pallidiflorum</i> (Hook.) G.Nicholson	•			•			•					
369	<i>Xylobium squalens</i> (Lindl.) Lindl.							•					
370	<i>Xylobium subintegrum</i> C. Schweinf.								•	•	•		
371	<i>Zootrophion</i> aff. <i>dayanum</i> (Rchb. f.) Luer	•							•	•	•	•	
372	<i>Zygopetalum maculatum</i> (Kunth) Garay							•	•				

# *Trichosalpinx reticulata*

LISA THOERLE & CARMEN SOTO



## A NEW SPECIES AND A NEW RECORD IN *TRICHOSALPINX* (ORCHIDACEAE: PLEUROTHALLIDINAE) FROM PERU

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**ABSTRACT.** A new species in *Trichosalpinx* is described, illustrated, and compared with similar species, and a new record for Peru is described and illustrated. A brief history of the genus is provided. *Trichosalpinx reticulata* is most similar to *T. carmeniae*, but differs with a reticulated, gray-green leaf; a longer inflorescence; and a lip with a pair of low, rounded basal lobes and an obtuse apex. *Trichosalpinx acremona* is recorded from Peruvian collections.

**KEY WORDS:** *Trichosalpinx*, Pleurothallidinae, Peru, taxonomy

In 1983, Luer proposed the genus *Trichosalpinx* to unite 85 species mostly scattered between various sections and subsections of the genus *Pleurothallis* R. Br., but the first species destined for this genus was discovered 181 years earlier. During their epic collecting expedition in the Americas around the dawn of the nineteenth century, Humboldt and Bonpland collected a plant in 1802 that Kunth later described as *Dendrobium pusillum* (Humboldt *et al.* 1816), now *Trichosalpinx pusilla* (Kunth) Luer. In the notes accompanying the original description in 1816, Kunth wondered if it might not better be described in the genus *Masdevallia* Ruiz & Pav., but allowed the difficulty of examining such a small flower, coupled with the small number of specimens, to dissuade him. Before the century was out, Lindley transferred this taxon first to *Specklinia* Lindl. (1835) and then to *Pleurothallis* (1842). The confusion was not limited to this species: Lindley described the species currently known as *T. ciliaris* (Lindl.) Luer and *T. orbicularis* (Lindl.) Luer in the genus *Specklinia* in 1838, and the present day *T. arbuscula* (Lindl.) Luer and *T. intricata* (Lindl.) Luer in the genus *Pleurothallis* several years later (Lindley 1842, 1846). Subsequent species described and transferred by many others were attributed to *Pleurothallis*, *Lepanthes* Sw., *Physosiphon* Lindl., and *Humboltia* Ruiz & Pav.

Not all of Luer's original 85 species remained in the genus *Trichosalpinx*, some having been transferred yet again to other genera, but new discoveries had boosted the number of species to 97 when Luer revised the genus

and sorted the species between four subgenera in 1997. Luer differentiated species of *Trichosalpinx* from the three other genera in the Pleurothallidinae characterized by ramicauls with lepanthiform sheaths (*Lepanthes* Sw., *Lepanthopsis* Ames, and *Draconanthes* Luer) by the column, with four variations accepted in *Trichosalpinx*. Subgenus *Tubella* Luer, which includes the proposed species *T. reticulata* Thoerle & C. Soto and the newly reported *T. acremona* (Luer) Luer, is characterized by a slender column with a column-foot and an unhooded but more or less winged apex, as well as slender ramicauls, often proliferating; racemes usually longer than the leaf; and flowers with lateral sepals nearly free from one another, entire petals, and an eciliate lip lacking basal lobules. Current investigations at the Jardín Botánico Lankester show that *Trichosalpinx sensu* Luer and subsequent rearrangements (Archila 2000) are not monophyletic, and generic-level changes are expected (Fernández 2013; Fernández & Bogarín 2013; Fernández & Karremans pers. comm. 2014).

Since 1997, the discovery of new species has resulted in a total of about 112 species accepted in *Trichosalpinx* (Luer 1998, 2002, 2006, 2007, 2009; Fernández-Concha & Ramírez 1998; Archila 2000; Christenson 2001; Fernández & Bogarín 2011, 2013). Approximately 15 species in subgenus *Tubella* have been identified in Peru. About an equal number of described species in the subgenus are known from very close to the borders of Peru and may be expected to occur there.

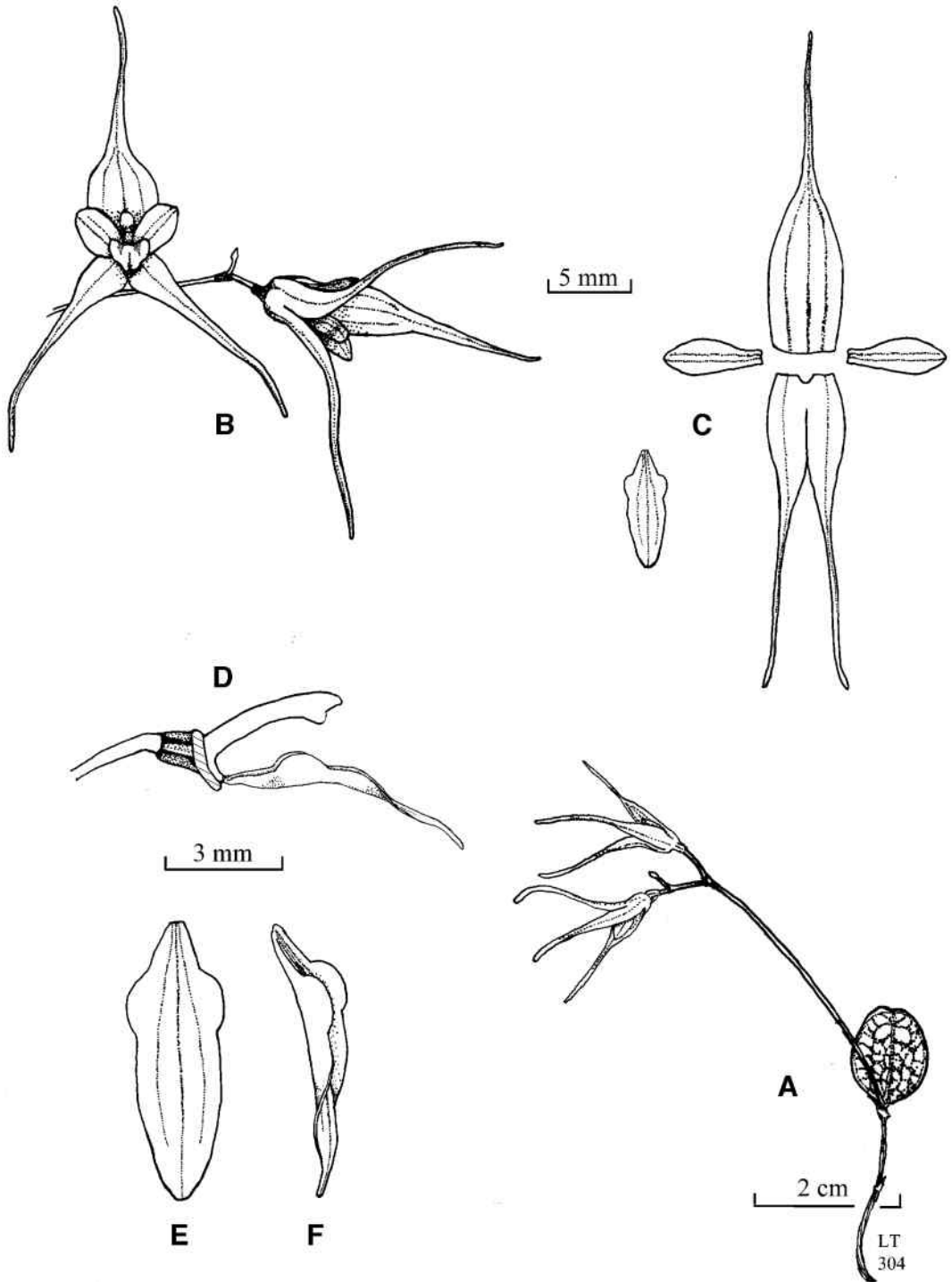


FIGURE 1. *Trichosalpinx reticulata* Thoele & C.Soto. A. Habit. B. Detail of the inflorescence. C. Dissected perianth, expanded. D. Ovary, lip, and column, lateral view. E. Lip, expanded. F. Lip, oblique view. Drawn by L. Thoele from C. Soto *Trichosalpinx* #3 (isotype: MO).

***Trichosalpinx reticulata* Thorerle & C.Soto, *sp. nov.***

TYPE: Peru. Cusco, on the side of a mountain within the Historic Sanctuary of Machu Picchu, 2200 m, 24 April 2012, collected by Daniel Auccayallo *et al.*, flowered in cultivation at the Inkaterra Machu Picchu Pueblo Hotel April 2013, C. Soto *Trichosalpinx* #3 (holotype: USM!; isotype: MO!). Figs. 1, 2.

DIAGNOSIS: This species is similar to *Trichosalpinx carmeniae* Luer, but differs in having gray-green, reticulated leaves, and a much longer inflorescence bearing flowers with a lip with a pair of low, rounded basal lobes and an obtuse apex.

*Plant* small, epiphytic, caespitose. *Roots* slender. *Ramicauls* erect to suberect, slender, 2-3 cm long, enclosed by 2-3 tight, ribbed, microscopically scabrous lepanthiform sheaths with dilated, acuminate ostia. *Leaf* coriaceous, gray-green with purple reticulation, broadly elliptical to subcircular, apex rounded and minutely retuse with a small, deflexed apiculum, 11-12 mm long, 9-10 mm wide, the broadly cuneate base abruptly contracted into a petiole 3 mm long. *Inflorescence* from the apex of the ramicaul, a loose, simultaneously few-flowered raceme of 2-4 flowers with the dorsal sepal closest to the rachis, displaying the exterior of the lateral sepals in the natural arrangement, at least 6-7 cm long including the erect to suberect peduncle 4-5 cm long. *Floral bracts* microscopically verrucose, acuminate, 1.5 mm long. *Pedicels* 6 mm long. *Ovary* 1 mm long, sulcate. *Flowers* light tawny-yellow with veins marked with red. *Sepals* glabrous, membranous. *Dorsal sepal* oblong, concave at the base, 20 mm long with a blade 11 mm long, 5 mm wide, 3-veined, acute, acuminate into a slender tail 9 mm long, connate to the lateral sepals for 1 mm. *Lateral sepals* narrowly oblong, 20 mm long with a blade 9 mm long, 2.5 mm wide, 1-veined, connate 2 mm, the apices acute, acuminate into slender tails 11 mm long. *Petals* glabrous, obovate, apex obtuse, 5.5-6 mm long, 2 mm wide, 2-veined. *Lip* glabrous, elliptical, apex obtuse, 7 mm long, 3 mm wide expanded, 3-veined, the margins erect below the middle with low, rounded side lobes, the broadly cuneate base hinged to the tip of the column-foot. *Column* slender, with small, obtuse, rounded apical wings, 3-3.5 mm long, column-foot 0.5 mm long. *Anther* and *stigma* ventral. *Pollinia* not observed.



FIGURE 2. *Trichosalpinx reticulata* Thorerle & C.Soto. The plant from which the type specimens were harvested. Photograph by C. Soto.

DISTRIBUTION: Known only from the Historic Sanctuary of Machu Picchu, Peru.

ETYMOLOGY: From the Latin *reticulatus*, “netted,” for the netlike pattern on the leaves.

HABITAT IN PERU: It grows epiphytically on small trees of Lauraceae, nestled in moss and lichens, approximately two meters above the ground, in wet cloud forest at an elevation of 2200 m.

PHENOLOGY: Cultivated along Inkaterra’s orchid trail, this species flowers in January, February, and April.

*Trichosalpinx reticulata* is most similar to the recently described *T. carmeniae* Luer (fig. 3, 4). The leaves of *T. reticulata* are smaller, proportionally wider (index *ca.* 1.2), and gray-green in color, reticulated with purple; those of *T. carmeniae* are longer, proportionally more slender, 15-16 mm long and about 8 mm wide (index *ca.* 1.9), and green without the attractive reticulation. The inflorescence of *T. reticulata* is about



FIGURE 3. *Trichosalpinx carmeniae*. A flower of the plant from which the type specimens were harvested. Photograph by C. Soto.

thrice as long as that of *T. carmeniae*. The long-tailed, acuminate sepals and the relatively large, two-veined petals are similar in size and shape. The petals and lip of *T. carmeniae* are solid rose in color, while those of *T. reticulata* are tan-yellow with red veins. The pair of low, well-defined, rounded lobes on the erect margins of the basal third of the lip of *T. reticulata* differs from the obscurely 4-lobed basal half of the lip in *T. carmeniae*. The apex of the lip of *T. carmeniae* is acute, rather than obtuse.

The Inka Terra Association Team discovered this lovely species on the mist-swept side of a mountain within the Historic Sanctuary of Machu Picchu. It grows on thin branches of a small tree in the Lauraceae, nestled in moss and lichens, approximately two meters above the ground. In cultivation along Inkaterra's orchid trail, *Trichosalpinx reticulata* flowers in January, February, and April.

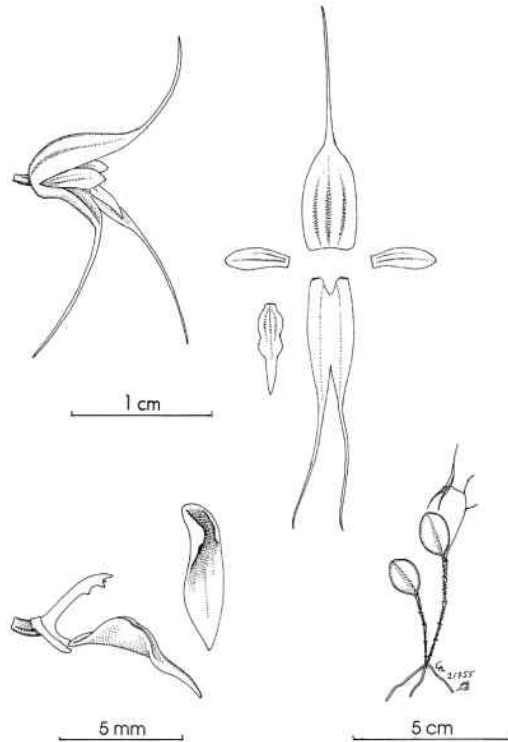


FIGURE 4. *Trichosalpinx carmeniae*. A. Habit. B. Flower. C. Dissected perianth, expanded. D. Ovary, lip, and column, lateral view. E. Lip, oblique view. Drawing by C. A. Luer from C. Soto *Trichosalpinx* #1 (MO). Reproduced with the permission of C. A. Luer and the Orchid Herbarium of Oakes Ames, Harvard University Herbaria..

*Trichosalpinx acremona* (Luer) Luer, *Phytologia* 54: 394. 1983.

TYPE: Ecuador. Collected by Janet Kuhn, without locality, flowered in cultivation by J & L Orchids, Easton, Connecticut, USA, November 1975, C. Luer 596 (holotype: SEL). Fig. 5.

DISTRIBUTION: Colombia, Ecuador, Peru, Bolivia.

ETYMOLOGY: From the Greek *acremon*, "a branch," referring to the branching habit of the plant.

HABITAT IN PERU: Epiphytic in wet cloud forest in the Historic Sanctuary of Machu Picchu between 2200 and 2600 m elevation.

PHENOLOGY: In cultivation along Inkaterra's orchid trail, this species flowers in March and April.

PERUVIAN MATERIAL STUDIED: Cusco: Montaña Poques,

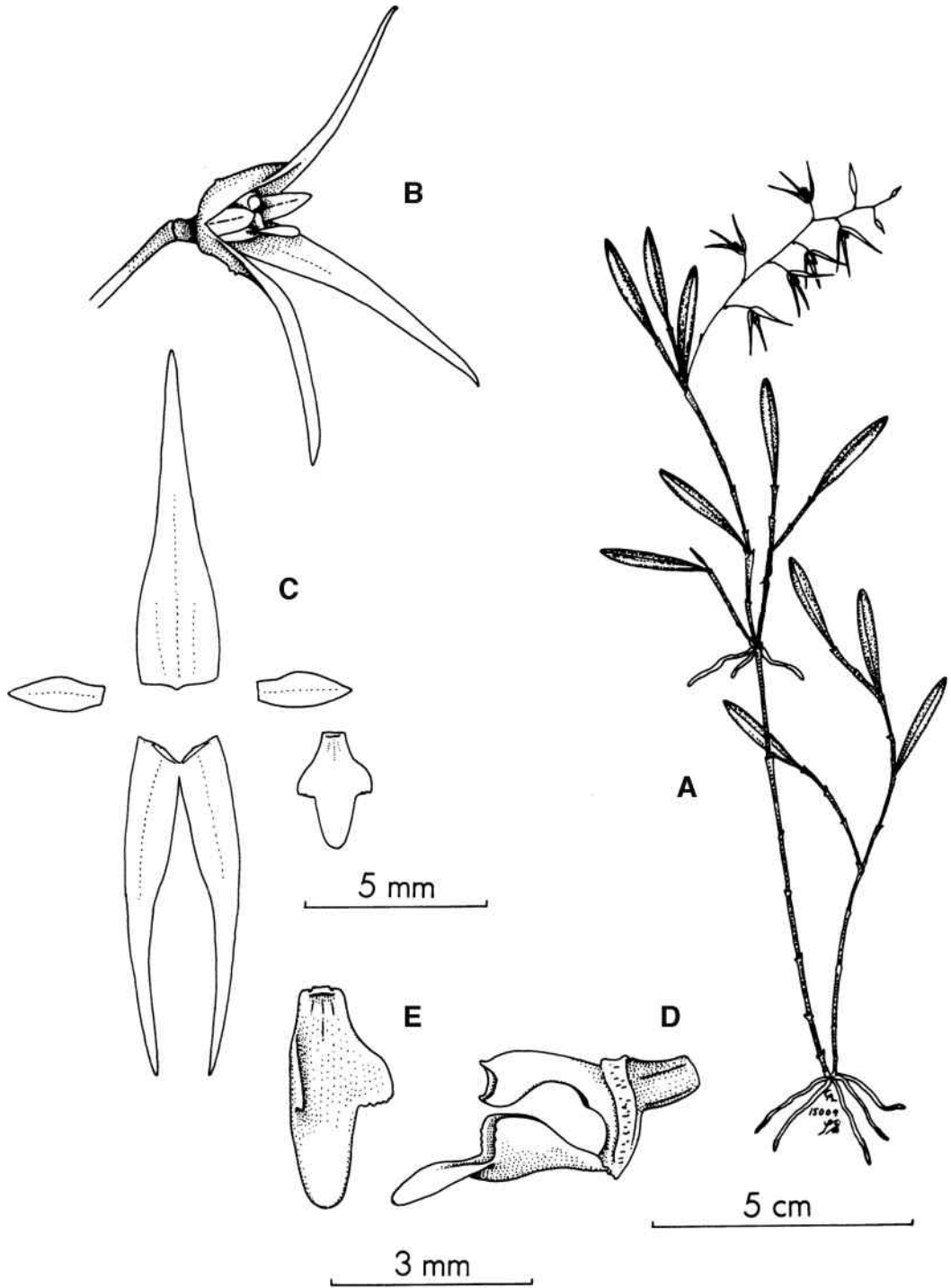


FIGURE 5. *Trichosalpinx acremona*. A. Habit. B. Flower. C. Dissected perianth, expanded. D. Ovary, lip, and column, lateral view. E. Lip, right side expanded. Drawing by C. A. Luer from C. Luer *et al.* 15009 (MO). Reproduced with the permission of C. A. Luer and the Missouri Botanical Garden Press.





FIGURE 6. *Trichosalpinx acremona*. The plant from which the type specimen was harvested (C. Soto *Trichosalpinx* #7, MO). Photograph by C. Soto

within the Historic Sanctuary of Machu Picchu, 2200 m elevation, 24 April 2012, collected by Daniel Auccayllo *et al.*, flowered in cultivation at the Inkaterra Machu Picchu Pueblo Hotel April 2013, C. Soto *Trichosalpinx* #4 (USM!, MO!). Same area, 2600 m elevation, 24 April 2012, collected by Daniel Auccayllo *et al.*, flowered in cultivation at the Inkaterra Machu Picchu Pueblo Hotel April 2013, C. Soto *Trichosalpinx* #7 (MO!). Fig. 6.

*Trichosalpinx acremona* has long been suspected to occur in Peru, because existing collections are known from the eastern slopes of the Andes in the surrounding countries of Colombia and Ecuador to the north, and Bolivia to the south (Luer 1997). The two specimens cited here were collected within the Historic Sanctuary of Machu Picchu by the Inka Terra Association team.

*Trichosalpinx acremona* (figure 5) shares a prolific growth habit, with subsequent ramicauls

arising from the apex of older ramicauls, and flowers with long, slender, acuminate sepals with a number of species in the subgenus *Tubella*. From these similar species, *T. acremona* is most easily distinguished by the lip. The well-developed, erect lateral lobes on the basal half of the lip are distinctively antrorse with an anterior margin ranging from irregular to minutely erose. The rounded apical portion is thickened and cellular-glandular to minutely verrucose above a smooth, featureless disc.

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# *Telipogon koechlinorum*

BENJAMÍN COLLANTES AND CARLOS MARTEL



# *Telipogon koechlinorum* (Orchidaceae), a new species from Machu Picchu, Peru

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**Abstract.** A new species of *Telipogon* (Orchidaceae, Oncidiinae) from Cusco, in Andean Peru, is described and illustrated. ***Telipogon koechlinorum*** is closely related to *T. casadevalliae*. The most significant differences are the clavate column with an elongate and incurved mentum, and a callus split in two by the column.

**Key Words:** Andes, cloud forest, Cusco, Machu Picchu, new species, *Telipogon*.

**Resumen.** Una especie nueva de *Telipogon* (Orchidaceae, Oncidiinae) proveniente de Cusco, en los Andes peruanos, es descrita e ilustrada. ***Telipogon koechlinorum*** sería cercanamente relacionado a *T. casadevalliae*. Las diferencias más significativas son la columna clavada con un mentón elongado e incurvado y un callo dividido en dos por la columna.

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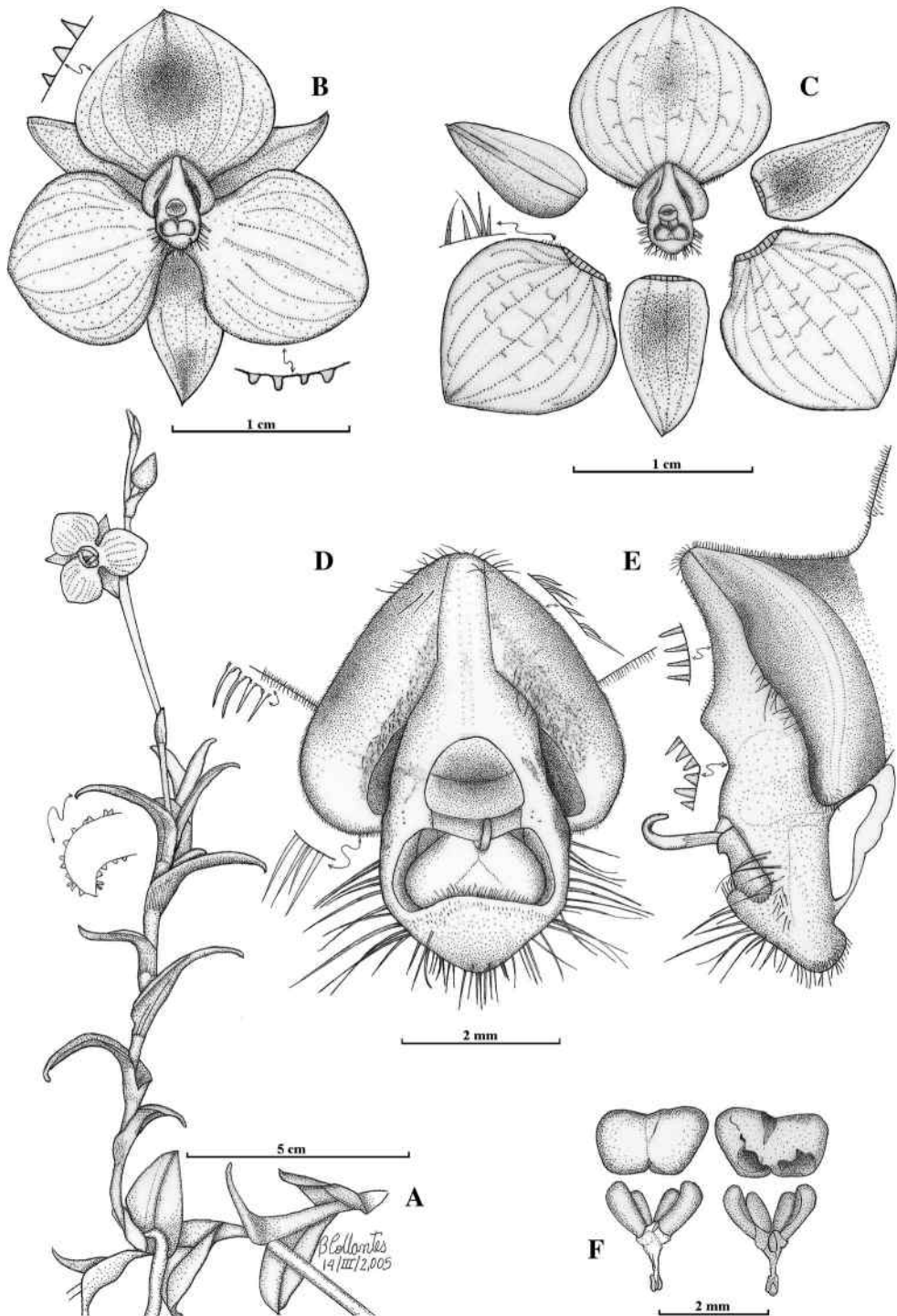
*Telipogon* Kunth is a Neotropical genus that belongs to the subtribe Oncidiinae (Orchidaceae). It is distributed from Mexico, Central America and the Caribbean, to Bolivia (Ackerman, 2004; Pridgeon et al., 2009; Bogarín, 2012). Plants of *Telipogon* grow exclusively at mid elevations in the cloud forests from 500 to 3500 m. *Telipogon* consists of roughly 200 species and presents its highest species diversity in the Andes (Martel & Nauray, 2013). *Telipogon* (including the previously transferred *Stellilabium* Schltr.; Williams et al., 2005) differs from its allies, *Hofmeisterella* Rchb. f. and *Trichoceros* Kunth (formerly subtribe Telipogoninae Schltr.; sensu Dressler, 1993), by the viscidium morphology (Martel, in prep.). Furthermore, *Hofmeisterella* flowers are not insect-like, which is the case of *Trichoceros* and *Telipogon* flowers; *Trichoceros* also has pseudobulbs, which are absent in *Telipogon* (except in *T. pseudobulbosus* N. H. Williams & Dressler and *T. selbyanus* (D. E. Benn. & Christenson) N. H. Williams & Dressler).

The diversity of Peruvian *Telipogon* has increased considerably during the last two decades (Brako & Zarucchi, 1993; Nauray & Galán, 2008). There are fifty-three currently recognized *Telipogon* species in Peru, and most of them have

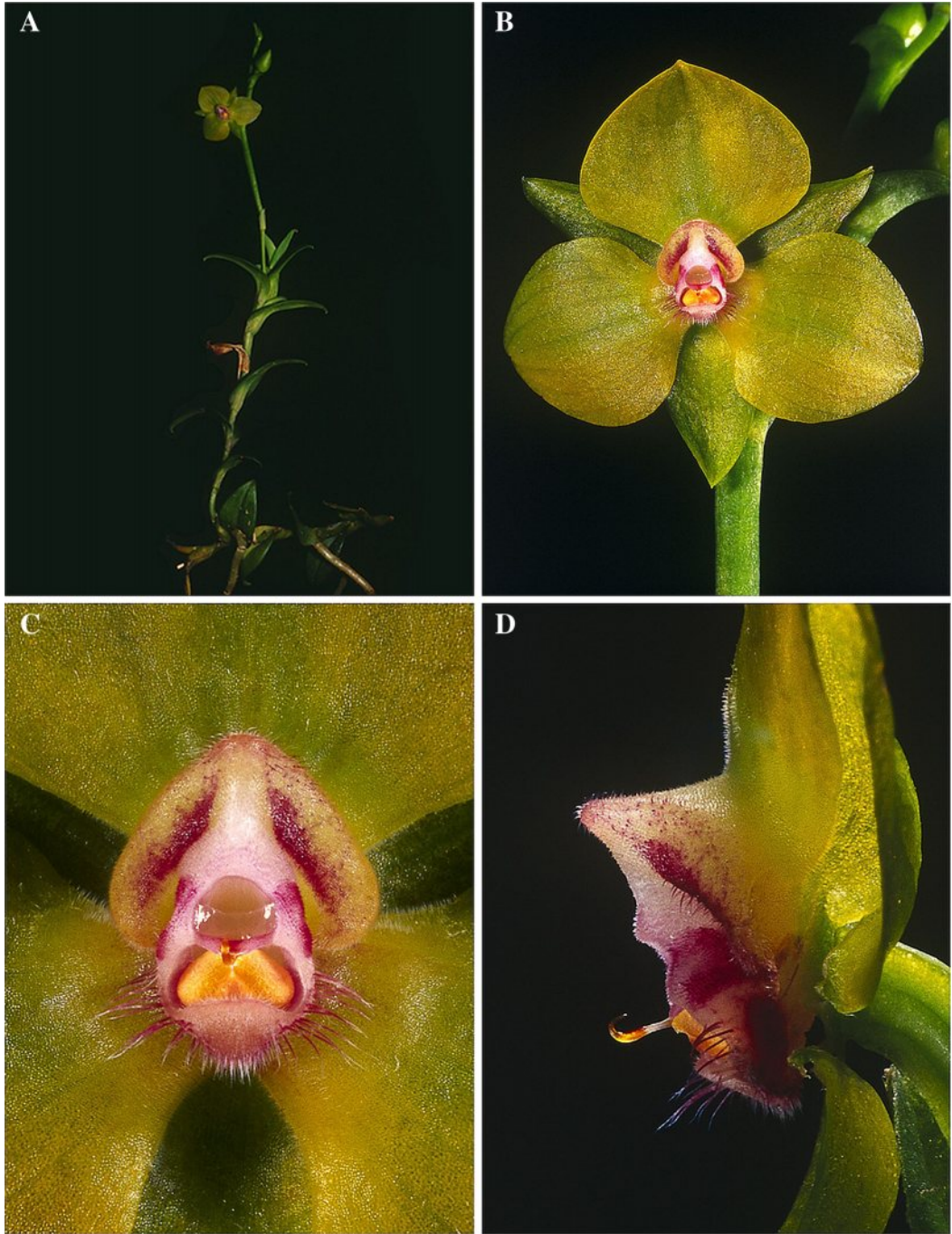
a restricted distribution. During field exploration in the Machu Picchu Historical Sanctuary (department of Cusco) conducted by the Inka Terra Association in 2003, an unknown *Telipogon* was recorded. This was later identified as a new *Telipogon* species (Collantes et al., 2007) but it has remained undescribed until now. The new species was found forming a small population and only one was collected. Therefore, the description of this new taxon is only based on the type collection. Here, we describe, illustrate, and discuss the affinities of this new *Telipogon* species.

***Telipogon koechlinorum*** Collantes & C. Martel, **sp. nov.** Type: Peru. Cusco: Prov. Urubamba, Distr. Machu Picchu, Quebrada Allccamay, Jardín de Orquídeas, Centro de Conservación *in situ* del Inkaterra Machu Picchu Pueblo Hotel, 3000 msnm, 6 Oct 2003, M. Quispe & E. Quispe Batallanos 350 (holotype: USM). (Figs. 1 and 2)

Species haec *Telipogoni casadevalliae* Nauray, A. Galán & M. Mamani affinis, sed labello 9-venio, suborbiculari, callo ob columna bipartito, columna clavata, mento oblongo et incurvo, labello petalisque immaculatis differt.



**FIG. 1.** *Telipogon koechlinorum*. **A.** Habit. **B.** Flower, frontal view, with details of the sepal apex and perianth margins. **C.** Flower, dissected view, details of perianth. **D.** Column and callus details, frontal view. **E.** Column and callus details, lateral view. **F.** Pollinarium with the anther cap removed, dorsal (left) and ventral (right) views. (Drawn from the holotype by B. Collantes).



**FIG. 2.** *Telipogon koechlinorum*. **A.** Habit. **B.** Flower, frontal view. **C.** Callus and column details, frontal view. **D.** Callus and column, lateral view. Note the trichomes on the callus and lip base in C and D. (Photographs by B. Collantes).

Epiphytic, monopodial, caulescent, herb to 20 cm tall (including the inflorescence). *Roots* 0.2–0.4 cm in diameter, basal. *Stem* to 11 × 0.4

cm, leafy, laterally complanate, with 1–2 branches from the lower and upper nodes. *Leaves* 1.5–3.0 × 0.5–1.2 cm, 5–8, coriaceous, distichous,

lanceolate, acute, the margins provided with minute conic papillae, leaf base deeply conduplicate, pseudopetiole decurrent on the stem. *Inflorescence* an apical, successively few-flowered raceme up to 9 cm long, pedunculate. *Floral bracts* 1.1 × 1.0 cm, ovate, conduplicate, as long as the ovaries. *Ovary* triquetrous, winged, 7 × 2 mm, pedicelate, ca. 1.1 cm. *Flowers* non-resupinate, 2 cm diam. *Sepals* 10 × 5 mm, pale green, lanceolate, subacute, minutely aristate, oblique, 3-veined, lateral sepals minutely aristate-mucronate and slightly carinate along the distal third. *Petals* 12 × 10 mm, yellowish green, slightly reflexed, suborbicular to broadly ovate from a cuneate claw, obtuse, 9-veined, veins greenish grey thin and inconspicuous, the margins minutely papillose, minutely setulose at the base. *Labellum* 12 × 12 mm, suborbicular, obtuse, the margins provided with minute conic papillae, basally minutely setose, 9-veined, veins greenish grey thin and inconspicuous. *Callus* 4 × 4 mm, creamy with two maroon fringes, cordiform, split in two by the column, basally minutely setose, setose above, the margin retrorse setulose. *Column* 0.5 × 2.5 mm, whitish with pale pink dots and maroon spots irregularly distributed, clavate, dorsally minutely setose, the apex setose, the lateral setae incurvate, to 1.6 mm long, setae maroon to whitish, apex setulose within, setulae whitish pink, mentum elongated and incurved. *Stigma* 1.4 × 1.1 mm, transversely ovate. *Rostellum* erect. *Anther cap* golden, hepaticiform. *Pollinarium* 2.0 × 1.7 mm; *pollinia* 4, in 2 unequal pairs, the outer pair larger, oblong-obovoid, the inner pair smaller, ellipsoid; caudicles hyaline; *viscidium* anclitrous.

*Distribution and ecology.*—*Telipogon koechlinorum* is known only from the western slope of the Andes, on the Allcamayo hills of Machu Picchu, department of Cusco, Peru. It grows as an epiphyte in remnant cloud forest at around 3000 m. Plants were found growing on branches and trunks of *Clusia* sp. (Clusiaceae).

*Conservation status.*—This species is presently only known from one location within the Machu Picchu sanctuary, thus according to the IUCN Red List (IUCN, 2010) it should be listed as critically endangered (CR, criterion D2/very small or restricted population).

*Eponymy.*—Named it in honor of José “Joe” Koechlin and his wife Denise Koechlin, for their active support to the conservation of the orchid

flora inside of the Historic Sanctuary of Machu Picchu.

*Telipogon koechlinorum* is closely related to *T. casadevalliae* Nauray, A. Galán & M. Mamani and *T. mesotropicalis* Nauray & A. Galán; all of those species bear non-resupinate flowers with the labellum slightly differentiated from the petals (almost an actinomorphic perianth). Both *T. casadevalliae* and *T. mesotropicalis* present a 7-veined labellum which differs from the 9 veins in *T. koechlinorum*. *Telipogon koechlinorum* appears to be more related to *T. casadevalliae* than to *T. mesotropicalis* because the first two have a much more similar column structure and a callus that distally is not totally attached to the column. *Telipogon koechlinorum* is easily recognized by bearing a callus split in two by the column, an oblong and incurved mentum, the petals and lip are greenish yellow and with thin and inconspicuous veins on the perianth. All of these three species occur in the cloud forest of Cusco department but *T. koechlinorum* is found sympatric with only *T. mesotropicalis*.

Nauray and Galán (2008) recognized 20 species of *Telipogon* for southern Peru, but they did not include the species formerly described as *Stellilabium* and previously transferred to *Telipogon* (Williams et al., 2005). Therefore there are twenty-four currently recognized *Telipogon* species for southern Peru. Nevertheless, this number will surely be increased in the near future with more exploration.

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