

EVE EMSHWILLER AND JEFF J. DOYLE. 2002. Origins of domestication and polyploidy in oca (*Oxalis tuberosa*: Oxalidaceae). 2. Chloroplast-expressed glutamine synthetase data. *American Journal of Botany* 89(7): 1042-1056.

Table 1. Accessions of *Oxalis* sampled for ncpGS (chloroplast-expressed glutamine synthetase) sequence.

Collection no. ^a	Country, department, province, locality	Species identification ^b	2n =
MHG884 ^c (cloned)	Bolivia, Potosí, Tomás Frías, Chuitara	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
MHG913 ^c (cloned)	Bolivia, Cochabamba, Carrasco, Totora	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
35•04 (cloned)	Perú, Cusco, Cusco, Pisac district, C. C. Amaru	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
MHG894 ^c (direct)	Bolivia, Potosí, Linares, Potosí	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
01•03 (direct)	Perú, Cusco, Cusco, market sample	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
02•08 (direct)	Perú, Cusco, Calca, Pisac district, C. C. Viacha	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
06•04 (direct)	Perú, Cusco, Calca, Pisac district, C. C. Viacha	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
25•03 (direct)	Perú, Cusco, Calca, Pisac district, C. C. Viacha	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
27•01 (direct)	Perú, Cusco, Calca, Pisac district, C. C. Viacha	<i>O. tuberosa</i> Molina [cultivated]	64 ^d
EE259 (cloned)	Bolivia, Cochabamba, Ayopaya, near Independencia	<i>O. sp. cfr. tuberosa</i> [wild tuber-bearing]	
EE260 (direct)	Bolivia, Cochabamba, Ayopaya, near Independencia	<i>O. sp. cfr. tuberosa</i> [wild tuber-bearing]	
EE284 (direct)	Bolivia, Cochabamba, Chapare, Candelaria	<i>O. sp. cfr. tuberosa</i> [wild tuber-bearing]	
EE410 (direct)	Bolivia, La Paz, Murillo, valley of Río Zongo	<i>O. sp. cfr. tuberosa</i> [wild tuber-bearing]	
EE500	Perú, Cusco, Cusco, San Jerónimo	<i>O. picchensis</i> R. Knuth	
EE531	Perú, Cusco, Calca, C. C. Pícol	<i>O. picchensis</i> R. Knuth	
EE184	Bolivia, La Paz, Larecaja, Sorata	<i>O. spiralis</i> R. and P. ex G. Don	16 ^{e,f,g} or 48 ^{d,h}
EE187	Bolivia, La Paz, Larecaja, Sorata	<i>O. spiralis</i> R. and P. ex G. Don	16 ^{e,f,g} or 48 ^{d,h}
EE244	Bolivia, Cochabamba, Ayopaya, Morochata	<i>O. spiralis</i> R. and P. ex G. Don	16 ^{e,f,g} or 48 ^{d,h}
EE249	Bolivia, Cochabamba, Chapare, above Locotal	<i>O. spiralis</i> R. and P. ex G. Don	16 ^{e,f,g} or 48 ^{d,h}
EE359	Bolivia, La Paz, Sud Yungas, between Unduavi and Chulumani	<i>O. mollissima</i> (Rusby) R. Knuth	16 ^d
EE308	Bolivia, La Paz, Nor Yungas, between Chuspipata and Yolosa	<i>O. oulophora</i> Lourteig	
EE809	Perú, Amazonas, Chachapoyas, Quebrada Molina below Chachapoyas	<i>O. medicaginea</i> Kunth	16 ^d
EE789	Perú, Amazonas, Chachapoyas, Marañón Valley between Balsas and Calla Calla	<i>O. lotoides</i> Kunth	48 ^d
EE799	Perú, Amazonas, Chachapoyas, between Pedro Ruiz and Pomacocha	<i>O. subintegra</i> R. Knuth	16 ^d

EE64	Bolivia, Cochabamba, Chapare, Locotal	<i>O. longissima</i> (Kuntze) K. Schum.	
EE351	Bolivia, La Paz, Nor Yungas, Unduavi	<i>O. unduavensis</i> (Rusby) R. Knuth	
EE291	Bolivia, La Paz, Nor Yungas, below Chuspipata	<i>O. unduavensis</i> (Rusby) R. Knuth	
EE190	Bolivia, La Paz, Larecaja, Sorata	<i>O. sp. cfr. melilotoides</i> Zuccarini	
EE485	Perú, Cusco, Paucartambo, below Callabamba	<i>O. lucumayensis</i> R. Knuth ssp. <i>lucumayensis</i>	
EE871	Perú, Cusco, La Convención, San Luis	<i>O. lucumayensis</i> R. Knuth ssp. <i>lucumayensis</i>	
EE289	Bolivia, La Paz, Nor Yungas, between Chuspipata and Yolosa	<i>O. lucumayensis</i> R. Knuth ssp. <i>subiens</i> Lourteig	
EE604	Perú, Junín, Huancayo, Chilifruta	<i>O. humbertii</i> Lourteig	
EE592	Perú, Junín, Concepción, Comas	<i>O. sp. n. "C"</i>	
EE345	Bolivia, La Paz, Murillo, Rinconada	<i>O. nubigena</i> Walpers	48-50 ⁱ
EE933	Perú, Cusco, Cusco, Pisac disctrict, C.C. Viacha	<i>O. petrophila</i> R. Knuth	
EE331	Bolivia, La Paz, Sud Yungas, Ikiko	<i>O. flagellata</i> (Rusby) Lourteig	
EE246	Bolivia, Cochabamba, Chapare, below Colomi	<i>O. flagellata</i> (Rusby) Lourteig	
EE916	Perú, Cusco, Calca, Lares Valley below Yerbabuenayoc	<i>O. sp. aff. ptychoclada</i>	
EE504	Perú, Cusco, Anta, near Puente Cunyac over Río Apurímac	<i>O. sp. n. "A"</i>	
EE548	Perú, Cusco, Quispicanchi, near Cusipata	<i>O. paucartambensis</i> R. Knuth	
EE532	Perú, Cusco, Cusco, C. C. Pícol	<i>O. cuzcensis</i> R. Knuth	
EE560	Perú, Cusco, La Convención, above Ollantaytambo	<i>O. herrerae</i> R. Knuth	16 ^d
EE913	Perú, Cusco, Calca, Lares Valley near Choquecancha	<i>O. herrerae</i> R. Knuth	16 ^d
HERR1 ^j	unknown ("Perú" ^k)	<i>O. herrerae</i> R. Knuth	16 ^d
EE786	Perú, Amazonas, Chachapoyas, above Leimebamba	<i>O. tabaconasensis</i> R. Knuth	16 ^d
EE797	Perú, Amazonas, Chachapoyas, near Pedro Ruiz	<i>O. oblongiformis</i> R. Knuth	16 ^d
PED1 ^j	unknown ("Ecuador, Perú" ^k)	<i>O. peduncularis</i> Kunth	16 ^d
EE746	Perú, Ancash, Huaylas, below Laguna Parón	<i>O. weberbaueri</i> Diels	
EE600	Perú, Junín, Huancayo, Chilifruta	<i>O. ptychoclada</i> Diels var. <i>trichocarpa</i> Lourteig	16 ^{f,g}
EE807	Perú, Amazonas, Chachapoyas, Churuja	<i>O. sp. n. "V"</i>	16? ^l
EE850	Perú, Cajamarca, Contumazá, near Bosque Cachil	<i>O. sp. cfr. peduncularis "B"</i>	
EE791	Perú, Amazonas, Chachapoyas, between Balsas and Callacalla	<i>O. peduncularis</i> Kunth var. <i>pilosa</i> Hieron.	
EE511 ^m	Perú, Cusco, Urubamba, Quebrada Mant'anáy above Yanahuara	<i>O. teneriensis</i> R. Knuth	
EE512 ^m	Perú, Cusco, Urubamba, Quebrada Mant'anáy above Yanahuara	<i>O. staffordiana</i> R. Knuth	

EE960 ^m	Perú, Cusco, Calca, ruins at Pisac	<i>O. polyrhiza</i> R. Knuth	
EE315	Bolivia, La Paz, Nor Yungas, between Chuspipata and Yolosa	<i>O. andina</i> Britton	16 ⁿ
ORT1 ^j	unknown (“Andes of Perú” ^k)	<i>O. ortgiesii</i> Regel	14 ^{o,p,q}
EE387	Bolivia, La Paz, Murillo, near La Paz	<i>O. pachyrrhiza</i> Weddell	18 ⁿ
EE773	Perú, Ancash, Yungay, near Guitarrero Cave	<i>O. megalorrhiza</i> [Feuillée] Jacquin	14 or 18? ^r
EE744	Perú, Ancash, Bolognesi, Paucar	<i>O. laxa</i> Hooker and Arnott var. <i>hispidissima</i> Barnéoud	18? ^s

^a Collections of E. Emshwiller and others (see acknowledgments), except as noted by footnotes c and j. Vouchers deposited at BH, with duplicates of wild *Oxalis* deposited at F, LPB, USM, CUZ, and/or CPUN. Living duplicate material of a subset at PROINPA and CIP.

^b As noted in the text, these provisional determinations include some names that have been reduced to synonymy by Lourteig, 2000.

^c Accessions of cultivated oca from Programa de la Investigación de la Papa (PROINPA), Cochabamba, Bolivia.

^d de Azkue and Martínez, 1990.

^e Brücher, 1969 (as *O. pubescens* Kunth)

^f Favarger and Huynh 1965.

^g Huynh, 1965.

^h Mathew, 1958 (as *O. pubescens* Kunth).

ⁱ Diers, 1961.

^j Plants purchased from Merry Gardens, Camden, Maine, USA.

^k Native areas as reported for these species in *Hortus Third* (Liberty Hyde Bailey Hortorium, 1976).

^l Accession EE807 is probably from the same population as the accession called “*O. sp. aff. villosula* Knuth” and reported to be diploid, with $2n = 2x = 16$ by de Azkue and Martínez (1990), as it has a villous indument and was collected in the same area. Accession EE807, which is here designated as *Oxalis* sp. “V,” may be a new species. *Oxalis villosula* proper was based on a collection from near Machu Picchu in Cusco Department, Peru, and is relegated to synonymy with *O. san-miguelii* ssp. *urubambensis* by Lourteig (2000).

^m Three wild *Oxalis* accessions, EE511, EE512, and EE960, were heterozygous at several informative sites and indels. Accessions EE511 and EE512 were especially problematic in phylogenetic analyses because they had missing data due to heterozygosity at two indels (see text), so they were excluded from most analyses.

ⁿ de Azkue, 2000.

^o Heitz, 1927.

^p Warburg, 1938.

^q Marks, 1956.

^r See note in text regarding counts published for possible synonyms (see also Emshwiller, 1999, Chapter 2, Table 2.5).

^s See note in text regarding counts for *O. micrantha* that might apply to *O. laxa* var. *hispidissima*.

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