

Table S1. List of hosts, countries of collection, and accession numbers of the ITS and 28S rDNA sequences used in this study.

Species	Host	Host family	Voucher ^a	Country of origin	Accession number		Reference
					ITS	28S	
<i>Arthrocladiella mougeotii</i>	<i>Lycium chinense</i>	Solanaceae	MUMH851	Japan	AB329690	AB329690	Takamatsu <i>et al.</i> , 2008
<i>Euoidium fuegianum</i>	<i>Ranunculus</i> sp.	Ranunculaceae	BCRU1608	Argentina	AB769443	—	Takamatsu <i>et al.</i> , 2013
<i>Euoidium mutisiae</i>	<i>Mutisia spinosa</i>	Compositae (Mutisieae)	BCRU330	Argentina	AB246762	AB246762	Takamatsu <i>et al.</i> , 2006
<i>Euoidium mutisiae</i>	<i>Mutisia spinosa</i>	Compositae (Mutisieae)	BCRU4644	Argentina	AB246763	AB246763	Takamatsu <i>et al.</i> , 2006
<i>Euoidium mutisiae</i>	<i>Mutisia spinosa</i>	Compositae (Mutisieae)	MUMH2457	Argentina	AB246764	AB246764	Takamatsu <i>et al.</i> , 2006
<i>Euoidium reginae</i>	<i>Mutisia decurrens</i>	Compositae (Mutisieae)	BCRU4645	Argentina	AB246759	AB246759	Takamatsu <i>et al.</i> , 2006
<i>Euoidium reginae</i>	<i>Mutisia decurrens</i>	Compositae (Mutisieae)	MUMH1882	Argentina	AB246760	AB246760	Takamatsu <i>et al.</i> , 2006
<i>Euoidium reginae</i>	<i>Mutisia decurrens</i>	Compositae (Mutisieae)	MUMH2458	Argentina	AB246761	AB246761	Takamatsu <i>et al.</i> , 2006
<i>Euoidium</i> sp.	<i>Wedelia glauca</i>	Compositae (Heliantheae)	MUMH3042	Argentina	AB769423	AB769423	Takamatsu <i>et al.</i> , 2013
<i>Euoidium</i> sp.	<i>Wedelia glauca</i>	Compositae (Heliantheae)	MUMH3081	Argentina	AB769424	AB769424	Takamatsu <i>et al.</i> , 2013
<i>G. adenophorae</i>	<i>Adenophora triphylla</i>	Campulaceae	—	Japan	AB769459	AB769459	Takamatsu <i>et al.</i> , 2013
<i>G. ambrosiae</i>	<i>Ambrosia artemisiifolia</i>	Compositae (Heliantheae)	HMJAU-PM91812	China	MK452583	MK452656	Qiu <i>et al.</i> , 2020
<i>G. ambrosiae</i>	<i>Ambrosia trifida</i>	Compositae (Heliantheae)	HMJAU-PM91813	China	MK452584	MK452657	Qiu <i>et al.</i> , 2020
<i>G. ambrosiae</i>	<i>Aster novi-belgii</i>	Compositae (Astereae)	HMJAU-PM91804	China	MK452575	MK452648	Qiu <i>et al.</i> , 2020
<i>G. ambrosiae</i>	<i>Dahlia pinnata</i>	Compositae (Heliantheae)	HMJAU-PM91822	China	MK452593	MK452666	Qiu <i>et al.</i> , 2020
<i>G. ambrosiae</i>	<i>Zinnia elegans</i>	Compositae (Heliantheae)	HMJAU-PM91842	China	MK452612	MK452685	Qiu <i>et al.</i> , 2020
<i>G. artemisiae</i>	<i>Artemisia montana</i>	Compositae (Anthemideae)	MUMH519	Japan	AB077649	AB077648	Matsuda and Takamatsu, 2003
<i>G. artemisiae</i>	<i>Artemisia princeps</i>	Compositae (Anthemideae)	MUMH175	Japan	AB077637	AB077636	Matsuda and Takamatsu, 2003
<i>G. artemisiae</i>	<i>Artemisia verlotiorum</i>	Compositae (Anthemideae)	MUMH1877	Argentina	AB769431	AB769431	Takamatsu <i>et al.</i> , 2013
<i>G. artemisiae</i>	<i>Artemisia vulgaris</i>	Compositae (Anthemideae)	MUMH1041	USA	AB769432	AB769432	Takamatsu <i>et al.</i> , 2013
<i>G. artemisiae</i>	<i>Artemisia vulgaris</i>	Compositae (Anthemideae)	MUMH6848	Japan	LC217863	LC217863	Bradshaw <i>et al.</i> , 2017
<i>G. artemisiae</i>	<i>Artemisia vulgaris</i>	Compositae (Anthemideae)	MUMH6849	Japan	LC217864	LC217864	Bradshaw <i>et al.</i> , 2017
<i>G. artemisiae</i>	<i>Nipponanthemum nipponicum</i>	Compositae (Anthemideae)	MUMH1084	Japan	AB769433	AB769433	Bradshaw <i>et al.</i> , 2017
<i>G. asperifolii</i>	<i>Cynoglossum officinale</i>	Borraginaceae	KUS-F30414	USA	MH189702	—	Braun <i>et al.</i> , 2018
<i>G. asperifolii</i>	<i>Myosotis arvensis</i>	Borraginaceae	GLM-F079306	Germany	MH189704	—	Braun <i>et al.</i> , 2018
<i>G. asperifolii</i>	<i>Trigonotis peduncularis</i>	Borraginaceae	KUS-F29281	Korea	MH189708	—	Braun <i>et al.</i> , 2018
<i>G. asperifoliorum</i>	<i>Pulmonaria officinalis</i>	Borraginaceae	GLM-F100040	Germany	MH189691	MH189691	Braun <i>et al.</i> , 2018
<i>G. asperifoliorum</i>	<i>Symphytum officinale</i>	Borraginaceae	KUS-F28744	Russia	MH189692	MH189692	Braun <i>et al.</i> , 2018
<i>G. asterum</i> var. <i>asterum</i>	<i>Aster</i> sp.	Compositae (Astereae)	MUMH684	Australia	AB769416	AB769416	Takamatsu <i>et al.</i> , 2013
<i>G. biocellatus</i> s. str.	<i>Glechoma hederacea</i>	Lamiaceae	KR-M 21890	Germany	LC076805	LC076805	Scholler <i>et al.</i> , 2016
<i>G. biocellatus</i> s. str.	<i>Glechoma hederacea</i>	Lamiaceae	KR-M 21901	Germany	LC076806	LC076806	Scholler <i>et al.</i> , 2016
<i>G. biocellatus</i> s. str.	<i>Lycopus europaeus</i>	Labiatae	KR-M 27775	Germany	LC076814	LC076814	Scholler <i>et al.</i> , 2016
<i>G. biocellatus</i> s. str.	<i>Lycopus europaeus</i>	Labiatae	KR-M 35014	Germany	LC076825	LC076825	Scholler <i>et al.</i> , 2016
<i>G. bolayi</i>	<i>Arabidopsis thaliana</i>	Brassicaceae	MUMH2603	Japan	AB769456	AB769456	Braun <i>et al.</i> , 2019

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Species	Host	Host family	Voucher ^a	Country of origin	Accession number		Reference
					ITS	28S	
<i>G. bolayi</i>	<i>Cucumis sativus</i>	Cucurbitaceae	MUMH1978	Japan	AB427187	AB427187	Braun et al., 2019
<i>G. bolayi</i>	<i>Incarvillea mairei</i>	Bignoniaceae	MUMH1387	Switzerland	AB769453	AB769453	Braun et al., 2019
<i>G. bolayi</i>	<i>Kalanchoe</i> sp.	Crassulaceae	HAL3275F	Germany	LC417096	LC417096	Braun et al., 2019
<i>G. bolayi</i>	<i>Lamium amplexicaule</i>	Lamiaceae	MUMH2003	Japan	AB427188	AB427188	Braun et al., 2019
<i>G. bolayi</i>	<i>Papaver somniferum</i>	Papaveraceae	MUMH1037	USA	AB769463	AB769463	Braun et al., 2019
<i>G. calceolariae</i>	<i>Calceolaria polyantha</i>	Scrophulariaceae	MUMH1934	Argentina	AB430810	AB430810	Takamatsu et al., 2009
<i>G. calceolariae</i>	<i>Galium aparin</i>	Rubiaceae	MUMH1879	Argentina	AB430812	AB430812	Takamatsu et al., 2009
<i>G. chrysanthemum</i>	<i>Chrysanthemum morifolium</i>	Compositae (Anthemideae)	GLM-F047617	Germany	LC217866	LC217866	Bradshaw et al., 2017
<i>G. chrysanthemum</i>	<i>Chrysanthemum morifolium</i>	Compositae (Anthemideae)	GLM-F048600	Germany	LC217867	LC217867	Bradshaw et al., 2017
<i>G. chrysanthemum</i>	<i>Chrysanthemum morifolium</i>	Compositae (Anthemideae)	JKI-2250-C14	Germany	LC217869	LC217869	Bradshaw et al., 2017
<i>G. chrysanthemum</i>	<i>Chrysanthemum morifolium</i>	Compositae (Anthemideae)	HAL3171F	USA	LC217865	LC217865	Bradshaw et al., 2017
<i>G. chrysanthemum</i>	<i>Chrysanthemum morifolium</i>	Compositae (Anthemideae)	MUMH1853	Japan	AB077654	AB077653	Bradshaw et al., 2017
<i>G. cichoracearum</i>	<i>Scorzonera hispanica</i>	Compositae (Lactuceae)	MUMH9757	Lithuania	AB077682	AB077681	Matsuda and Takamatsu, 2003
<i>G. cichoracearum</i>	<i>Tragopogon pratensis</i>	Compositae (Lactuceae)	MUMH937	Lithuania	AB769449	AB769449	Takamatsu et al., 2013
<i>G. circumfusus</i>	<i>Eupatorium cannabinum</i>	Compositae (Eupatorieae)	GLM-F49501	Germany	MK452630	MK452703	Qiu et al., 2020
<i>G. circumfusus</i>	<i>Eupatorium cannabinum</i>	Compositae (Eupatorieae)	GLM-F74796	Germany	MK452629	MK452702	Qiu et al., 2020
<i>G. circumfusus</i>	<i>Eupatorium cannabinum</i>	Compositae (Eupatorieae)	HAL3300F	Germany	MK452628	MK452701	Qiu et al., 2020
<i>G. cynoglossi</i>	<i>Myosotis</i> sp.	Boraginaceae	VPR120429	Australia	AB769455	AB769455	Takamatsu et al., 2013
<i>G. depressus</i>	<i>Arctium lappa</i>	Compositae (Cynareae)	MUMH696	Hungary	AB077675	AB077676	Matsuda and Takamatsu, 2003
<i>G. depressus</i>	<i>Arctium lappa</i>	Compositae (Cynareae)	MUMH957	Lithuania	AB769411	AB769412	Takamatsu et al., 2013
<i>G. echinopsis</i>	<i>Echinops exaltatus</i>	Compositae (Cynareae)	MUMH1363	Switzerland	AB769414	AB769414	Takamatsu et al., 2013
<i>G. fischeri</i>	<i>Senecio doronicum</i>	Compositae (Senecioneae)	MUMH1343	Switzerland	AB769450	AB769450	Takamatsu et al., 2013
<i>G. hieraciorum</i>	<i>Hieracium sabaudum</i>	Compositae (Lactuceae)	HAL953F	Germany	—	MZ420213	This study
<i>G. hieraciorum</i>	<i>Hieracium umbellatum</i>	Compositae (Lactuceae)	HMJAU-PM91858	China	MZ420204	MZ420204	This study
<i>G. hieraciorum</i>	<i>Hieracium umbellatum</i>	Compositae (Lactuceae)	HMJAU-PM91859	China	MZ420205	MZ420205	This study
<i>G. hieraciorum</i>	<i>Hieracium virosum</i>	Compositae (Lactuceae)	HAL859F	Russia	MZ420206	MZ420206	This study
<i>G. hieraciorum</i>	<i>Pilosella aurantiaca</i>	Compositae (Lactuceae)	—	UK	KY660945	—	Ellingham et al., 2019
<i>G. hieraciorum</i>	<i>Pilosella aurantiaca</i>	Compositae (Lactuceae)	—	UK	KY660935	—	Ellingham et al., 2019
<i>G. inulae</i>	<i>Inula britannica</i> var. <i>chinensis</i>	Compositae (Inuleae)	KUS-F24692	Korea	GU143089	—	Park et al., 2010
<i>G. inulae</i>	<i>Inula salicina</i>	Compositae (Inuleae)	MUMH1334	Switzerland	AB769428	AB769428	Takamatsu et al., 2013
<i>G. latisporus</i>	<i>Helianthus annuus</i>	Compositae (Heliantheae)	MUMH731	Lithuania	AB077679	AB077680	Matsuda and Takamatsu, 2003
<i>G. latisporus</i>	<i>Helianthus tuberosus</i>	Compositae (Heliantheae)	MUMH3081	Lithuania	AB769419	AB769419	Takamatsu et al., 2013
<i>G. leuceriae</i>	<i>Leuceria thernmarum</i>	Compositae (Mutisieae)	MUMH1880	Argentina	AB246765	AB246765	Takamatsu et al., 2006

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Table S1. (Continued).

Species	Host	Host family	Voucher ^a	Country of origin	Accession number		Reference
					ITS	28S	
<i>G. leuceriae</i>	<i>Leuceria thermanum</i>	Compositae (Mutisieae)	MUMH2527	Argentina	AB246766	AB246766	Takamatsu <i>et al.</i> , 2006
<i>G. longipes</i>	<i>Petunia hybrida</i>	Solanaceae	MUMH2489	Argentina	AB769440	AB769440	Takamatsu <i>et al.</i> , 2013
<i>G. lycopersici</i>	<i>Lycopersicon esculentum</i>	Solanaceae	VPRI 19847	Australia	AF229021	—	Kiss <i>et al.</i> , 2001
<i>G. macrocarpus</i>	<i>Achillea millefolium</i>	Compositae (Anthemideae)	MUMH939	Lithuania	AB769429	AB769429	Takamatsu <i>et al.</i> , 2013
<i>G. macrocarpus</i>	<i>Tanacetum</i> sp.	Compositae (Anthemideae)	VPRI20160	Australia	AB769434	AB769435	Takamatsu <i>et al.</i> , 2013
<i>G. macrocarpus</i>	<i>Tanacetum vulgare</i>	Compositae (Anthemideae)	HAL3153F	Germany	LC217868	LC217868	Bradshaw <i>et al.</i> , 2017
<i>G. magnicellulatus</i>	<i>Phlox paniculata</i>	Palemoniaceae	MUMH933	Lithuania	AB769441	AB769441	Takamatsu <i>et al.</i> , 2013
<i>G. magnicellulatus</i>	<i>Phlox paniculata</i>	Palemoniaceae	MUMH1036	USA	(AB769441)	AB769442	Takamatsu <i>et al.</i> , 2013
<i>G. magnicellulatus</i>	<i>Physalis alkekengi</i>	Solanaceae	HMJAU-PM91840	China	MK452610	MK452683	Qiu <i>et al.</i> , 2020
<i>G. monardae</i>	<i>Mentha piperita</i>	Labiatae	KR-M39096	Germany	LC076835	LC076835	Scholler <i>et al.</i> , 2016
<i>G. monardae</i>	<i>Monarda citriodora</i>	Labiatae	KR-M24044	Germany	LC076809	LC076809	Scholler <i>et al.</i> , 2016
<i>G. monardae</i>	<i>Monarda fistulosa</i>	Lamiaceae	KR-M35023	Germany	LC076830	LC076830	Scholler <i>et al.</i> , 2016
<i>G. monardae</i>	<i>Thymus citriodorus</i>	Labiatae	KR-M33259	Germany	LC076815	LC076815	Scholler <i>et al.</i> , 2016
<i>G. montagnei</i>	<i>Cirsium japonicum</i>	Compositae (Carduaceae)	MUMH1082	Japan	AB769413	AB769413	Takamatsu <i>et al.</i> , 2013
<i>G. montagnei</i>	<i>Serratula coronata</i>	Compositae (Cynareae)	YNMH12310	Japan	AB077656	AB077656	Matsuda and Takamatsu, 2003
<i>G. neosalviae</i>	<i>Salvia fructicosa</i>	Lamiaceae	KR-M 33266	Germany	LC076819	LC076819	Scholler <i>et al.</i> , 2016
<i>G. neosalviae</i>	<i>Salvia lavandulifolia</i>	Lamiaceae	KR-M 39098	Germany	LC076837	LC076837	Scholler <i>et al.</i> , 2016
<i>G. neosalviae</i>	<i>Salvia lavandulifolia</i>	Lamiaceae	KR-M 39099	Germany	LC076838	LC076838	Scholler <i>et al.</i> , 2016
<i>G. neosalviae</i>	<i>Salvia officinalis</i>	Lamiaceae	KR-M 35012	Germany	LC076823	LC076823	Scholler <i>et al.</i> , 2016
<i>G. neosalviae</i>	<i>Salvia officinalis</i>	Lamiaceae	KR-M 38203	Germany	LC076833	LC076833	Scholler <i>et al.</i> , 2016
<i>G. ocimi</i>	<i>Ocimum tenuiflorum</i>	Labiatae	MUMH1803	Thailand	LC306656	—	Meeboon <i>et al.</i> , 2018
<i>G. ocimi</i>	<i>Ocimum tenuiflorum</i>	Labiatae	MUMH6621	Thailand	LC306657	—	Meeboon <i>et al.</i> , 2018
<i>G. orontii</i>	<i>Papaver rhoeas</i>	Papaveraceae	MUMH1393	Switzerland	AB769466	AB769466	Takamatsu <i>et al.</i> , 2013
<i>G. orontii</i>	<i>Valeriana officinalis</i>	Valerianaceae	MUMH938	Lithuania	AB769471	AB769471	Takamatsu <i>et al.</i> , 2013
<i>G. orontii</i>	<i>Viola arvensis</i>	Violaceae	MUMH1406	Switzerland	AB769472	AB769472	Takamatsu <i>et al.</i> , 2013
<i>G. riedlianus</i>	<i>Galium album</i>	Rubiaceae	MUMH1301	Switzerland	AB430811	AB430811	Takamatsu <i>et al.</i> , 2009
<i>G. riedlianus</i>	<i>Galium ruthenicum</i>	Rubiaceae	MUMH3223	Ukraine	AB430814	AB430814	Takamatsu <i>et al.</i> , 2009
<i>G. riedlianus</i>	<i>Galium verum</i>	Rubiaceae	MUMH1148	Japan	AB430819	AB430819	Takamatsu <i>et al.</i> , 2009
<i>G. riedlianus</i>	<i>Galium verum</i>	Rubiaceae	MUMH3217	Ukraine	AB430820	AB430820	Takamatsu <i>et al.</i> , 2009
<i>G. salviae</i>	<i>Salvia nemorosa</i>	Lamiaceae	KR-M 46020	Germany	LC100001	LC100001	Scholler <i>et al.</i> , 2016
<i>G. salviae</i>	<i>Salvia pratensis</i>	Lamiaceae	KR-M 18634	Germany	LC076803	LC076803	Scholler <i>et al.</i> , 2016
<i>G. salviae</i>	<i>Salvia pratensis</i>	Lamiaceae	MUMH935	Lithuania	AB769437	AB077690	Takamatsu <i>et al.</i> , 2013
<i>G. sonchicola</i>	<i>Sonchus arvensis</i>	Compositae (Lactuceae)	MUMH952	Lithuania	AB453762	AB453762	Takamatsu <i>et al.</i> , 2013

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Species	Host	Host family	Voucher ^a	Country of origin	Accession number		Reference
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<i>G. sonchicola</i>	<i>Sonchus arvensis</i>	Compositae (<i>Lactuceae</i>)	MUMH683	Hungary	AB077673	AB077672	Matsuda and Takamatsu, 2003
<i>G. sonchicola</i>	<i>Sonchus oleraceus</i>	Compositae (<i>Lactuceae</i>)	—	Japan	AB077623	AB077624	Matsuda and Takamatsu, 2003
<i>G. sordidus</i>	<i>Plantago asiatica</i>	Plantaginaceae	MUMHn41	Japan	AB077658	AB077657	Matsuda and Takamatsu, 2003
<i>G. sordidus</i>	<i>Plantago lanceolata</i>	Plantaginaceae	MUMH661	Switzerland	AB077665	AB077664	Matsuda and Takamatsu, 2003
<i>G. sordidus</i>	<i>Plantago</i> sp.	Plantaginaceae	MUMH2433	Argentina	AB769467	AB769467	Takamatsu <i>et al.</i> , 2013
<i>G. sparsus</i>	<i>Euphorbia collina</i>	Euphorbiaceae	MUMH3807	Brazil	AB769460	AB769460	Takamatsu <i>et al.</i> , 2013
<i>G. sparsus</i>	<i>Euphorbia collina</i>	Euphorbiaceae	BCRU934	Argentina	AB769461	AB769461	Takamatsu <i>et al.</i> , 2013
<i>G. tabaci</i>	<i>Capsella bursa-pastoris</i>	Cruciferae	MUMH1388	Japan	LC417098	LC417098	Braun <i>et al.</i> , 2019
<i>G. tabaci</i>	<i>Capsella bursa-pastoris</i>	Cruciferae	HAL2506F	Japan	LC417100	LC417100	Braun <i>et al.</i> , 2019
<i>G. tabaci</i>	<i>Capsella rubella</i>	Cruciferae	—	Switzerland	LC417099	LC417099	Braun <i>et al.</i> , 2019
<i>G. tabaci</i>	<i>Galium aparine</i>	Rubiaceae	MUMH3225	Ukraine	AB430813	AB430813	Braun <i>et al.</i> , 2019
<i>G. tabaci</i>	<i>Galium spurium</i> var. <i>echinospermon</i>	Rubiaceae	MUMH826	Japan	AB430815	AB430815	Braun <i>et al.</i> , 2019
<i>G. tabaci</i>	<i>Galium spurium</i> var. <i>echinospermon</i>	Rubiaceae	MUMH2622	Japan	AB430816	AB430816	Braun <i>et al.</i> , 2019
<i>G. tabaci</i>	<i>Galium spurium</i> var. <i>echinospermon</i>	Rubiaceae	MUMH2623	Japan	AB430817	AB430817	Braun <i>et al.</i> , 2019
<i>G. tabaci</i>	<i>Galium spurium</i> var. <i>echinospermon</i>	Rubiaceae	MUMH2624	Japan	AB430818	AB430818	Takamatsu <i>et al.</i> , 2009
<i>G. tabaci</i>	<i>Inula helenium</i>	Compositae (<i>Inuleae</i>)	MUMH940	Lithuania	AB769445	AB769445	Braun <i>et al.</i> , 2019
<i>G. verbasci</i>	<i>Verbascum densiflorum</i>	Scrophulariaceae	MUMH958	Lithuania	AB769468	AB769469	Takamatsu <i>et al.</i> , 2013
<i>G. verbasci</i>	<i>Verbascum thapsus</i>	Scrophulariaceae	HMJAU-PM91935	China	MZ505461	—	This study
<i>G. vincae</i>	<i>Vinca pervinca</i>	Apocynaceae	MUMH2480	Argentina	AB769444	AB769444	Takamatsu <i>et al.</i> , 2013
<i>Golovinomyces</i> sp.	<i>Ageratum conyzoides</i>	Compositae (<i>Eupatorieae</i>)	MUMH6739	Thailand	LC306669	—	Meeboon <i>et al.</i> , 2018
<i>Golovinomyces</i> sp.	<i>Bidens pilosa</i>	Compositae (<i>Heliantheae</i>)	MUMH6685	Thailand	LC306668	—	Meeboon <i>et al.</i> , 2018
<i>Golovinomyces</i> sp.	<i>Lapsana communis</i>	Compositae (<i>Lactuceae</i>)	MUMH637	Switzerland	AB077662	AB769439	Matsuda and Takamatsu, 2003

^a BCRU: Universidad Nacional del Comahue, Argentina; GLM: Senckenberg Gesellschaft für Naturforschung; Senckenberg Museum für Naturkunde Görlitz, Görlitz; HAL: Martin Luther Universität, Institut für Biologie, Bereich Geobotanik und Botanischer Garten, Herbarium, Halle; HMJAU: Herbarium of Mycology of Jiin Agricultural University, China; KR: Herbarium of State Museum of Natural History, Karlsruhe, Germany; KUS: Korea University, Korea; MUMH: Mie University, Mycological Herbarium, Japan; VPRI: Victorian Department of Primary Industries, Australia; YNMH: Yukihiko Nomura Mycological Herbarium, Japan.