

## **Supplementary Materials**

### **A Tale of Two Hyper-diversities: Diversification dynamics of the two largest families of lichenized fungi**

Ekaphan Kraichak<sup>1,2</sup>, Pradeep K. Divakar<sup>3</sup>, Ana Crespo<sup>3</sup>, Steven D. Leavitt<sup>1</sup>, Matthew P. Nelsen<sup>1,4</sup>, Robert Lücking<sup>1</sup>, H. Thorsten Lumbsch<sup>1</sup>

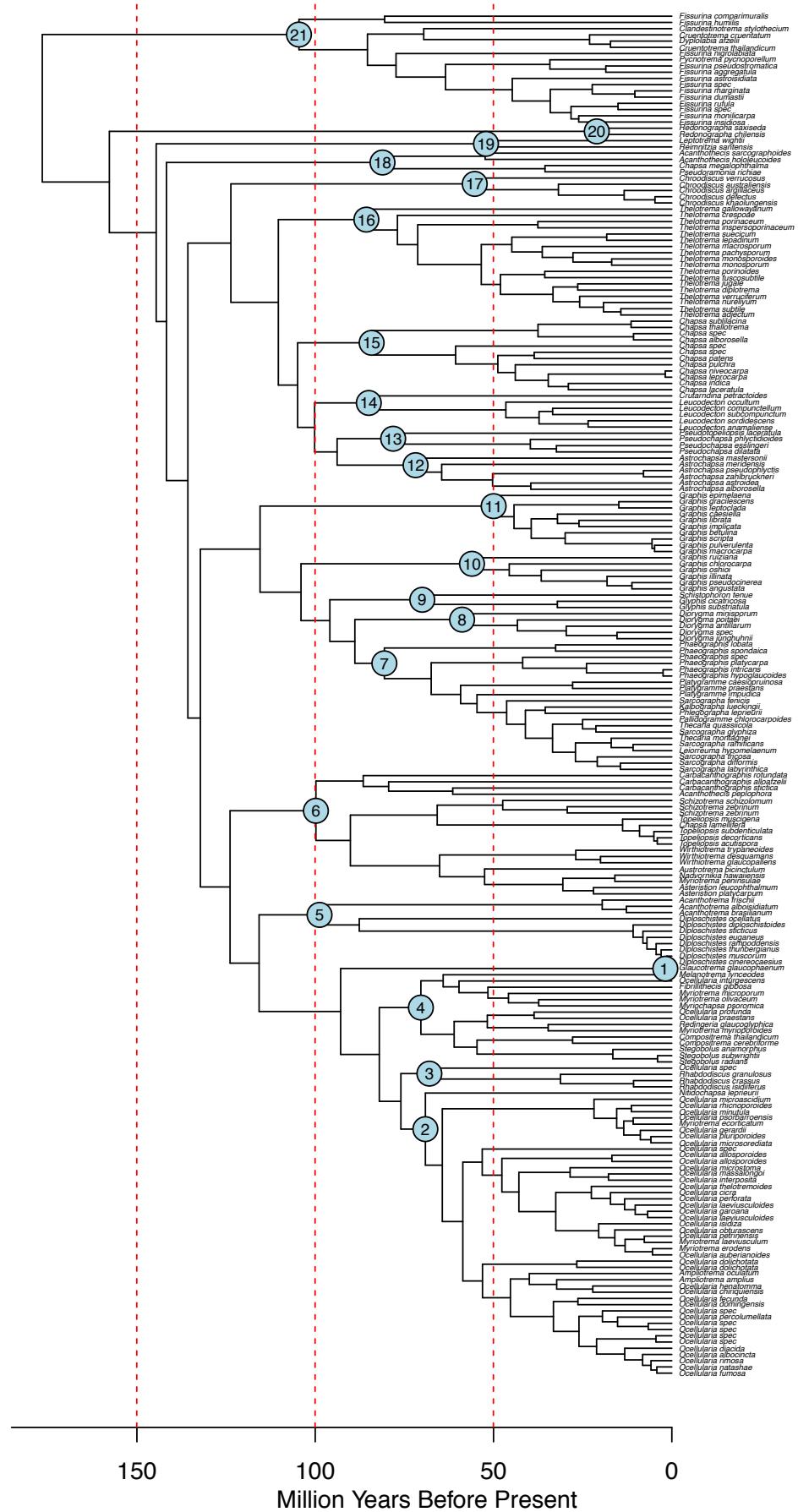
<sup>1</sup> Science and Education, The Field Museum, 1400 S Lake Shore Drive, Chicago, IL 60605 USA

<sup>2</sup> Department of Botany, Faculty of Science, Kasetsart University, Bangkok, 10900 Thailand

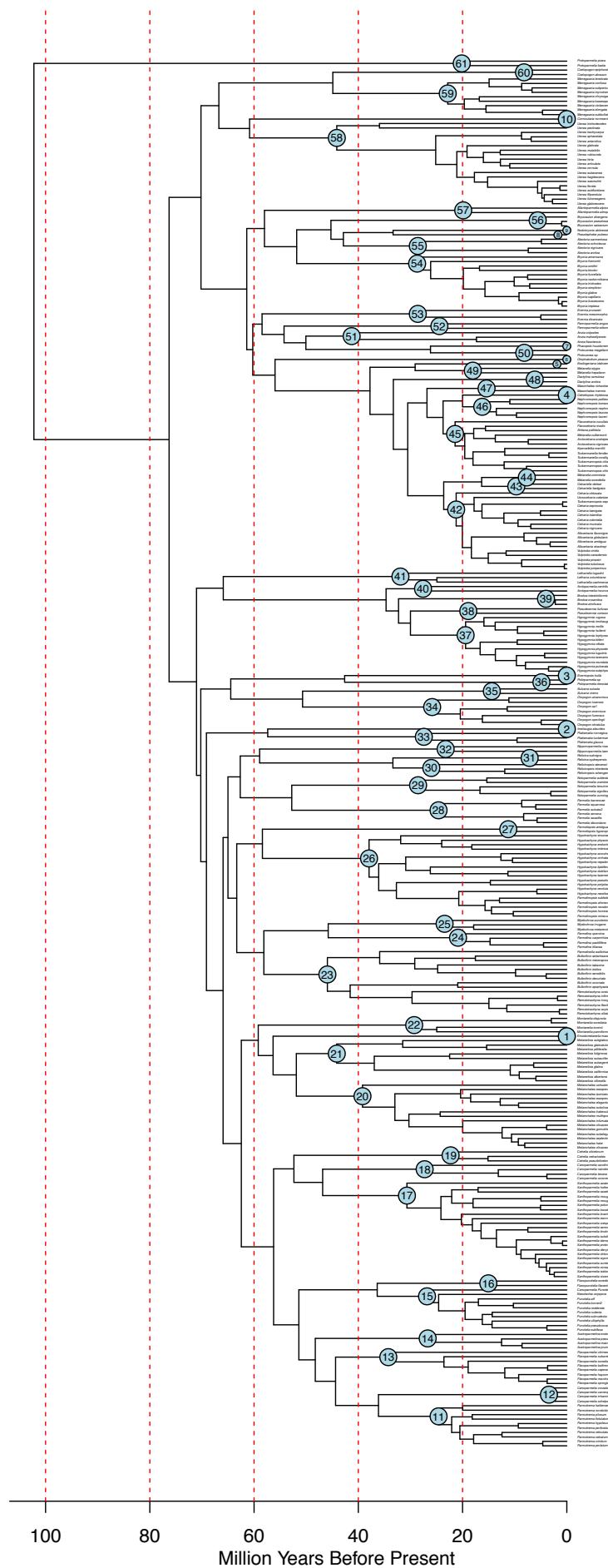
<sup>3</sup> Departamento de Biología Vegetal II, Facultad de Farmacia, Universidad Complutense de Madrid, Madrid 28040, Spain

<sup>4</sup> Department of Geological and Environmental Sciences, Stanford University, Stanford, CA 94305

**Supplementary Figure 1: Maximum Credibility Clade Tree of lichen-forming fungi family Graphidaceae.**  
See node names in supplementary table 1.



**Supplementary Figure 2: Maximum Credibility Clade Tree of lichen-forming fungi family Parmeliaceae.**  
See node names in supplementary table 2.



**Supplementary Table 1:** Clades and their species richness in Graphidaceae

clade	Node Number	Total Number of Taxa	Number of sampled taxa
Glaucotrema	1	6	1
Ocellularia	2	317	46
Rhabdodiscus	3	43	4
Myriotrema	4	126	15
Diploschistae	5	39	11
Wirthiotremateae	6	83	20
Phaeographis	7	300	21
Diorygma	8	90	5
Glyphis	9	13	3
Allographa	10	237	6
Graphis	11	314	10
Astrochapsa	12	22	6
Pseudochapsa	13	22	4
Leucodecton	14	28	6
Chapsa	15	58	12
Thelotrema	16	107	18
Chroodiscus	17	14	5
Acanthotheciae	18	63	4
Leptotremateae	19	5	2
Redonographoideae	20	7	2
<u>Fissurinoideae</u>	21	185	18

**Supplementary Table 2:** Clades and their species richness in Parmeliaceae

clade	Node Number	Total Number of Taxa	Number of sampled taxa
Emodomelanelia	1	1	1
Imshaugia	2	7	1
Everniopsis	3	1	1
Cetreliosispsis	4	7	1
Esslingeriana	5	1	1
Omphalodium	6	4	1
Phacopsis	7	35	1
Pseudophebe	8	2	1
Nodobryoria	9	3	1
Conicularia	10	1	1
Parmotrema	11	300	10
Canoparmelia1	12	20	4
Flavoparmelia	13	32	8
Austroparmelina	14	13	4
Punctelia	15	49	10
Flavopunctelia	16	5	2
Xanthoparmelia	17	820	22
Canoparmelia2	18	20	4
Cetrelia	19	15	3
Melanothalea	20	22	15
Melanelixia	21	15	10
Montanelia	22	9	4
Bulbothrix	23	73	15
Parmelia	24	9	4
Myelochroa	25	30	3
Hypotrachyna	26	213	19
Parmeliopsis	27	3	2
Parmelia	28	41	6
Notoparmelia	29	16	5
Relicinopsis	30	5	3
Relicina	31	54	2
Nipponoparmelia	32	4	2
Platismatia	33	11	3
Oropogon	34	40	7
Sulcaria	35	4	2
Psiloparmelia	36	13	2
Hypogymnia	37	90	13
Pseudevernia	38	4	2
Brodoa	39	3	3
Arctoparmelia	40	5	2
Letheria	41	17	3
Cetraria	42	32	18
Cetrariella	43	4	2
Melanelia2	44	6	2
Tuckermaniopsis	45	38	12
Nephromopsis	46	21	5

<b>clade</b>	<b>Node Number</b>	<b>Total Number of Taxa</b>	<b>Number of sampled taxa</b>
Masonhalea	47	2	2
Dactylinia	48	2	2
Melanelia1	49	7	2
Protousnea	50	8	2
Anzia	51	34	3
Pannoparmelia	52	5	2
Evernia	53	10	3
Bryoria	54	51	12
Alectoria	55	9	4
Bryocaulon	56	4	3
Allantoparmelia	57	3	2
Usnea	58	350	19
Menegazzia	59	70	9
Coelopogon	60	2	2
Protoparmelia	61	15	2