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SUPPLEMENTARY DATA

Ecological factors affecting the distribution of the *Amanita* genus (poisonous mushrooms) in the Central Highlands, Vietnam

Factores ecológicos que afectan la distribución del género *Amanita* (hongos venenosos) en las Tierras Altas Centrales de Vietnam

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Figure S1. *Amanita crocea* (Quél.) Singer 1951. (a, b) Fruiting bodies, (c) Spores, (d) Hyphae. Scale bars for a = 2 cm and c = 3 µm. *Amanita eliae* Quél. 1872. (e–g) Fruiting bodies, (h) Spores, (i) Hyphae. Scale bars for e = 2 cm and h = 2 µm.

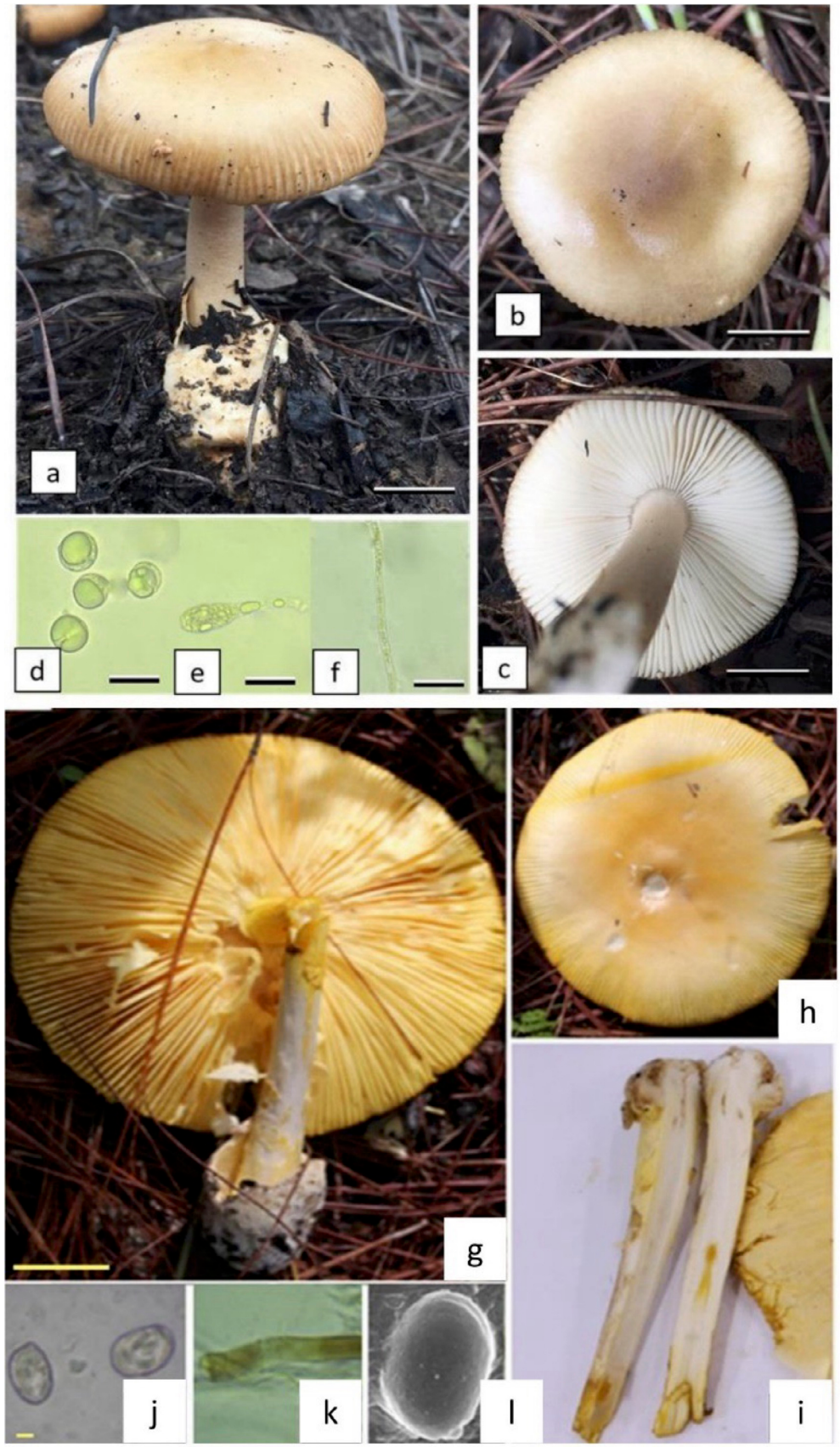

Figure S2. *Amanita fulva* Fr., 1815. (a, b) Fruiting bodies, (c) Underside, (d) Spores, (e) Basidia, (f) Hyphae. Scale bars for a–c = 3 cm and d–f = 10 µm. *Amanita similis* Boedijn 1951. (g-i) Fruiting bodies, (j) Spores, (k) Hyphae, (l) Spores under SEM. Scale bars for a = g cm and j = 2 µm.

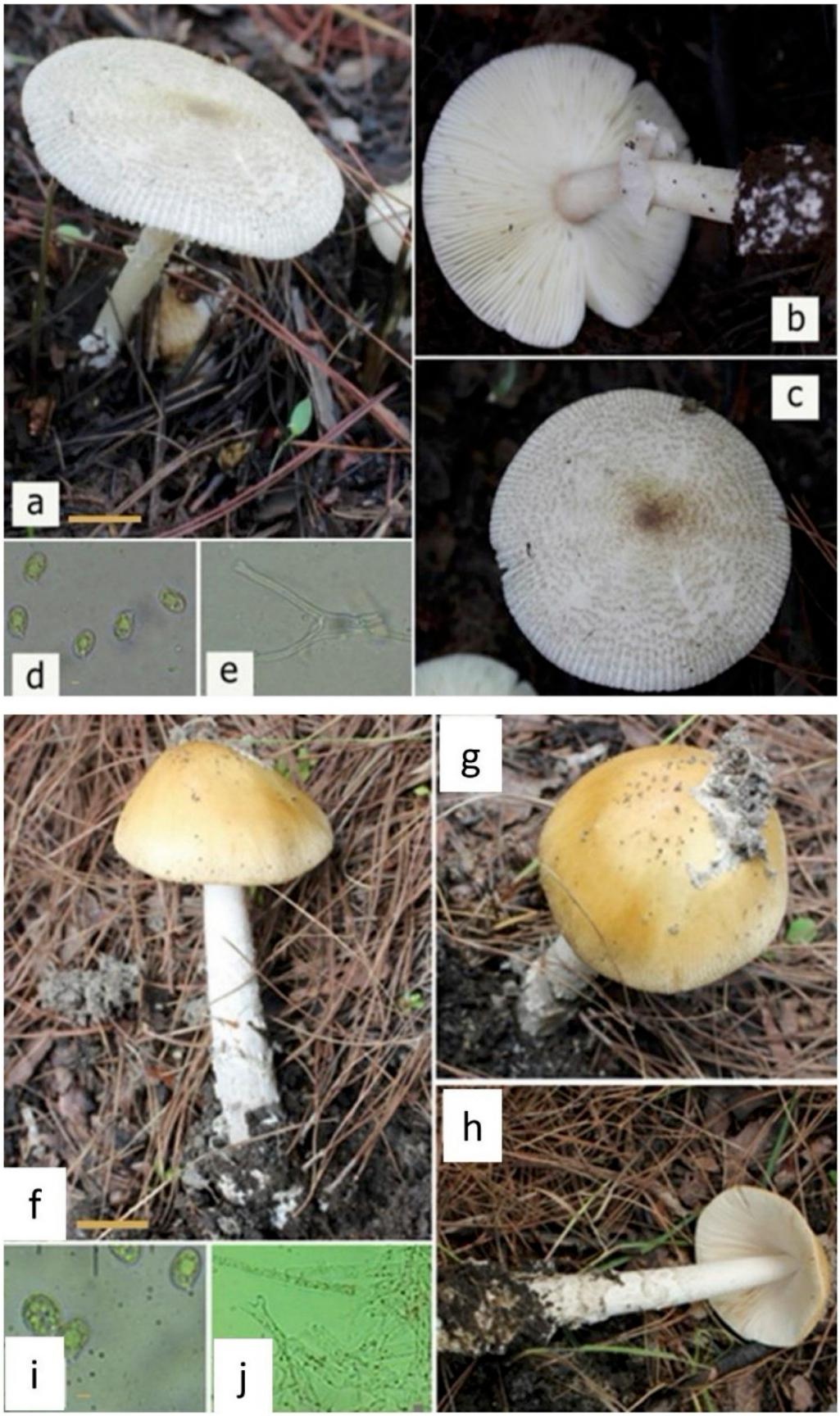

Figure S3. *Amanita* sp.9. (a-c) Fruiting bodies, (d) Spores, (e) Hyphae. Scale bars for a = 2 cm and d = 2 µm. *Amanita* sp.10. (f-h) Fruiting bodies, (i) Spores, (j) Hyphae. Scale bars for f = 2 cm and i = 2 µm.

Figure S4. *Amanita* sp.11. (a-c) Fruiting bodies, (d) Spores, (e) Hyphae. Scale bars for a = 2 cm and d = 2 µm. *Amanita* sp.12. (f-h) Fruiting bodies, (i) Basidia, (j) Spores, (k) Hyphae. Scale bars for f = 2 cm.

Table 1. Distribution of the *Amanita* genus by temperature, humidity, altitude, light intensity, and habitat. / Distribución del género *Amanita* según la temperatura, humedad, altitud, intensidad de la luz, y hábitat.

Scientific names	Temperature (°C)				Humidity (%)				Altitude (m)					Light intensity (lux)				Habitat					
	< 19	19 - 22	> 22	Total of each species	< 85	85 - 90	> 90	Total of each species	200-500	500-800	800-1100	> 1100	Total of each species	< 800	800-1000	> 1000	Total of each species	Pine forests (RT)	Evergreen forests (RTX)	Semi-evergreen forests (RBTX)	Coniferous forests (RHG)	Grasses and low shrubs (TC,CB)	Total of each species
A. sp.1	25	36	8	69	20	55	4	79	16	38	8	6	68	25	50		75	3			1	1	2	7
A. sp.2	22	28	8	58	27	40	4	71	18	40	6		64	22	39		61	3			1		4	8
A. sp.3	10	25		35	6	42		48	11	27			38	10	20		30	3				1	2	6
A. caesarea (Scop.) Pers. 1801	11	20		31	8	22		30	9	19	2		30	4	20	8	32	1				2	3	6
A. caesareoides Lj.N. Vassiljeva 1950	12	30	9	51	14	42	2	58	12	40	3		55	17	30	9	56	2			1	2	1	6
A. sp.12	19	32	4	55	14	34	4	52	11	35	7		53	21	25	9	55	3			2			5
A. crocea (Quél.) Singer 1951	17	31	5	53	10	30	7	47	6	38	5		49	14	30		44				1	3	2	6
A. eliae Quél. 1872	14	33		47	6	36		42	6	31	6	4	47	12	30		42	3						3
A. excelsa (Fr.) Bertill. 1866		14		14		17		17		14			14		14		14				1	2	2	5
A. flavoconia G.F. Atk. 1902	5	29		34	1	28		29	5	29			34	4	30		34	3				2	1	6
A. fulva Fr., 1815	12	32	6	50	7	35	3	45	7	35	6		48	15	30		45	1	1		1	1		4
A. sp.4		28	7	35		25	7	32		35	5		37		30	9	39	1			1	4	2	8
A. sp.5		14		14		19		19		14			14	9			9				1	4	3	8
A. multisquamosa Peck 1901	2	19		21		21		21	4	17			21	6	15		21	3					2	5
A. pantherina D.T. Jenkins 1977		12	2	14		14		14		14			14	4	15		19	1			2	2		5
A. phalloides Secr. 1833	8	10		18		14		14		14			14	4	15		19	3					1	4
A. pilosella Corner & Bas 1962		12	2	14		12	2	14		7	2		9		7	5	12				1	3	1	5
A. sp.6	10	29	3	42	2	33		35	8	23	4	5	40	15	20		35	3				2	1	6
A. similis Boedijn 1951	10	19	2	31	7	25	2	34	7	22			29	13	25		38	3			1	2	2	8
A. spreta (Peck) Sacc. 1887		15	4	19		15	2	17		15	4		19		13	6	19	2				2	1	5
A. sp.7		19		19		19		19		19			19	9	15		24	3				3	3	9
A. sp.8	11	21		32	9	21		30	9	23			32	11	21		32	3				3	3	9
A. sp.9	8	13		21	9	13		22	8	20			28	11	13		24	3				2	5	10
A. sp.10		14	5	19		10	2	12		20	2		22		15	2	17	2			1	1	4	8
A. sp.11		19		19		14		14		14			14		15	4	19				1	1	1	3
Total	196	554	65	815	140	636	39	815	137	603	60	15	815	226	537	52	815	49	1		16	43	46	
Number of species	16	25	13		14	25	11		15	25	13	03		19	24	8		20	1		14	20	21	

Table 2. Data of ecological factors for the *Amanita* species in the Central Highlands. / Datos de factores ecológicos para las especies de *Amanita* en el Altiplano Central.

Scientific name	Frequency of occurrence	Forest types	Altitude (m)	Temperature (°C)	Humidity (%)	Light intensity (lux)
A. spreta (Peck) Sacc. 1887	34	3	200	24	90	8200
A. sp.6	35	3	200	25	75	10600
A. pantherina D.T. Jenkins 1977	33	3	250	21	80	8800
A. spreta (Peck) Sacc. 1887	37	3	250	22	75	11460
A. pilosella Corner & Bas 1962	28	3	250	24	90	5500
A. sp.1	33	3	250	24	95	6890
A. sp.9	31	2	250	25	90	6600
A. sp.12	40	3	250	25	75	12600
A. similis Boedijn 1951	35	1	250	25	60	12200
A. sp.8	31	1	300	22	90	6500
A. sp.4	33	4	300	22	85	7900
A. solitaria (sensu NCL 1960)	37	3	300	24	90	9000
A. phalloides Secr. 1833	34	4	300	24	85	8200
A. sp.2	33	3	300	24	85	7870
A. sp.12	36	2	300	25	80	9690
A. caesarea (Scop.) Pers. 1801	32	3	300	25	90	6790
A. sp.5	32	4	300	25	85	6967
A. sp.1	34	4	300	25	85	8000
A. sp.8	35	2	300	26	98	7000
A. sp.2	34	3	350	20	99	6400
A. sp.11	39	2	400	21	80	10800
A. sp.3	33	3	400	22	90	6650
A. sp.7	39	3	400	22	91	9230
A. sp.8	36	3	400	23	90	7800
A. pantherina D.T. Jenkins 1977	39	4	400	23	85	9890
A. sp.10	34	4	400	23	95	6500
A. caesarea (Scop.) Pers. 1801	34	3	400	23	100	6000
A. crocea (Quél.) Singer 1951	34	3	450	20	89	7050
A. sp.12	35	4	450	22	85	7800
A. sp.9	40	3	450	22	89	9500
A. calyptroderma Atkinson & Ballen 1909	41	4	450	22	90	9700
A. sp.1	35	4	450	22	90	7000
A. sp.5	33	3	450	22	85	6670

Continuación Table 2.

Scientific name	Frequency of occurrence	Forest types	Altitude (m)	Temperature (°C)	Humidity (%)	Light intensity (lux)
A. caesareoides Lj.N. Vassiljeva 1950	41	4	450	23	97	9000
A. sp.7	34	3	500	17	97	6000
A. excelsa (Fr.) Bertill. 1866	38	2	500	19	91	8080
A. spreta (Peck) Sacc. 1887	38	1	500	21	90	7900
A. sp.6	38	3	500	21	90	8200
A. eliae Quél. 1872	34	4	500	21	90	6500
A. sp.11	34	4	500	21	95	6000
A. similis Boedijn 1951	38	4	500	22	98	7200
A. sp.3	32	3	500	23	90	5500
A. similis Boedijn 1951	36	4	550	22	90	7000
A. sp.5	40	4	560	19	94	8340
A. pantherina D.T. Jenkins 1977	38	4	600	17	95	7000
A. sp.5	40	1	600	18	95	7900
A. flavoconia G.F. Atk. 1902	39	2	600	18	98	7000
A. cokeri E.-J. Gilbert & Kühner ex E.-J. Gilbert 1940	36	2	600	19	90	6870
A. phalloides Secr. 1833	37	4	600	19	90	7112
A. sp.10	42	1	600	20	90	9200
A. sp.12	36	2	600	21	95	5900
A. fulva Fr., 1815	39	2	600	21	90	7700
A. phalloides Secr. 1833	38	1	620	18	98	6500
A. multisquamosa Peck 1901	37	1	650	19	90	7000
A. sp.12	40	4	700	17	90	7700
*A.*sp.11	38	2	700	17	99	6100
A. flavoconia G.F. Atk. 1902	38	1	700	18	94	6500
A. sp.5	39	2	700	18	95	6900
A. excelsa (Fr.) Bertill. 1866	37	1	700	18	95	6000
A. sp.2	42	2	700	18	97	8000
A. fulva Fr. 1815	39	1	700	18	95	7000
A. caesareoides Lj.N. Vassiljeva 1950	41	2	700	19	92	7800
A. sp.10	39	2	700	19	85	7800
A. similis Boedijn 1951	38	2	700	19	90	7000
A. flavoconia G.F. Atk. 1902	38	2	700	20	90	6800
A. pilosella Corner & Bas 1962	45	2	710	20	90	10000

Continuación Table 2.

Scientific name	Frequency of occurrence	Forest types	Altitude (m)	Temperature (°C)	Humidity (%)	Light intensity (lux)
A. sp.3	40	1	750	17	95	7000
A. multisquamosa Peck 1901	39	1	750	17	100	6000
A. sp.4	41	1	800	17	95	7000
A. solitaria (sensu NCL 1960)	38	2	800	18	90	6500
A. caesarea (Scop.) Pers. 1801	41	2	800	18	95	7000
A. sp.8	35	1	800	19	85	5800
A. sp.2	41	2	850	20	95	6700
A. sp.6	39	1	900	17	95	5500
A. excelsa (Fr.) Bertill. 1866	38	1	900	17	90	5896
A. multisquamosa Peck 1901	41	2	900	18	90	6900
A. sp.3	41	2	900	18	90	6900
A. sp.4	43	2	900	18	95	7000
A. sp.4	41	1	900	18	90	7000
A. sp.1	39	2	900	18	95	5690
A. sp.2	41	1	900	18	90	6900
A. flavoconia G.F. Atk. 1902	40	2	900	18	90	6500
A. pilosella Corner & Bas 1962	44	1	900	18.5	95	7800
A. sp.10	40	1	900	19	90	6500
A. caesareoides Lj.N. Vassiljeva 1950	40	2	900	19	95	5890
A. pilosella Corner & Bas 1962	41	1	900	19	90	6934
A. eliae Quél. 1872	43	2	1000	17	95	6500
A. pantherina D.T. Jenkins 1977	41	1	1000	17	95	5906
A. caesarea var. *alba* Gillet 1874	45	1	1000	18	97	7000
A. sp.7	42	2	1000	18	90	6790
A. fulva Fr., 1815	44	1	1100	17	97	6100
A. eliae Quél. 1872	36	1	1100	17	99	6000
A. sp.6	43	2	1100	19	85	7000
A. sp.1	45	1	1200	17	93	6400
A. eliae Quél. 1872	36	1	1200	17	90	6790
A. multisquamosa Peck 1901	42	1	1200	18	90	7110
A. calyptroderma Atkinson & Ballen 1909	35	1	1300	18	90	6000
A. phalloides Secr. 1833	32	2	1400	17	90	8000
A. sp.10	44	1	1500	17	95	6600

Table 3. Values of the multivariable regression equation. / Valores de la ecuación de regresión multivariable.

Variable	Beta	SE	T	*p*-value
A	-1.98314	6.81899	-0.290825	0.7718
Light	0.00207615	0.000191312	10.8521	0.0000
Humidity	0.283289	0.0470994	6.01471	0.0000
Altitude	0.00764196	0.00112211	6.81033	0.0000
Temperature	-0.298556	0.134036	-2.22744	0.0281