

Supplementary Materials

Supplementary Methods

Molecular analyses

Total genomic DNA was extracted from liver tissues. Tissue samples were digested using proteinase K, and subsequently purified following standard phenol/chloroform isolation and ethanol precipitation. Fragments encoding partial 16S rRNA (*16S*) and cytochrome c oxidase subunit I (*COI*) genes were amplified using primer pairs 16Sar/16Sbr (Palumbi et al., 1991) and Chmf4/Chmr4 (Che et al., 2012), respectively. Polymerase chain reaction (PCR) amplifications were performed in 50 μ L reactions using the following cycling conditions: initial denaturing step at 95 °C for 4 min; 35 cycles of denaturing at 94 °C for 60 s, annealing at 46–51 °C for 60 s (46 °C for *COI* and 51 °C for *16S*), and extending at 72 °C for 60 s; and a final extension step of 72 °C for 10 min. Sequencing was conducted directly using the corresponding PCR primers. All new sequences were deposited in GenBank under accession Nos. MT509809, MT509810, and MT522176 (Supplementary Table S1). Available homologous sequences of members of *Theloderma* were obtained from GenBank (Supplementary Table S1). Four rhacophorid species were selected as outgroups according to Qi et al. (2018) and their sequences were also downloaded from GenBank.

Sequences were aligned using MUSCLE with default parameters in MEGA 7 (Kumar et al., 2016). Uncorrected pairwise distances between species were calculated in MEGA 7. The best substitution models of *16S* and *COI* were selected using the corrected Akaike Information Criterion (AICc) in jMODELTEST v2.1.10 (Darriba et al., 2012). Bayesian inferences were performed in MRBAYES v3.2.6 (Ronquist et al., 2012) under the selected substitution models for *16S* (TIM2 + I + G) and *COI* (TIM2 + I + G). Two runs were performed simultaneously with four Markov chains starting from random tree. The chains were run for 3 000 000 generations and sampled every 100 generations. The first 25% of the sampled tree was discarded as burn-in after the standard deviation of split frequencies of the two runs was less than 0.01. The remaining trees were then used to create a consensus tree and to estimate Bayesian

posterior probabilities (BPPs).

Morphology

Measurements were taken with a digital caliper to the nearest 0.1 mm. Morphological terminology followed Fei et al. (2009). Measurements included: snout-vent length (SVL, from tip of snout to vent); head length (HL, from tip of snout to rear of jaw); head width (HW, width of head at widest point); snout length (SL, from tip of snout to anterior border of eye); internarial distance (IND, distance between nares); interorbital distance (IOD, minimum distance between upper eyelids); upper eyelid width (UEW, maximum width of upper eyelid); eye diameter (ED, diameter of exposed portion of eyeball); tympanum diameter (TD, greater of tympanum vertical and horizontal diameters); distance from nostril to eye (DNE, from nostril to anterior border of eye); forearm and hand length (FHL, from elbow to tip of third finger); tibia length (TL, distance from knee to heel); foot length (FL, from proximal end of inner metatarsal tubercle to tip of fourth toe); and length of foot and tarsus (TFL, distance from tibiotarsal joint to tip of fourth toe). Webbing formula followed Myers & Duellman (1982).

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Supplementary Table S1 Species used for molecular phylogenetic analysis.

Species	Voucher	Locality	16S	COI
<i>Buergeria oxycephala</i>	MVZ 230425	Hainan, China	KU244359	KU244459
<i>Nyctixalus pictus</i>	MVZ 239460	Bengkulu, Indonesia	KU561880	–
<i>Gracixalus jinxiuensis</i>	KIZ 0612210YP	Guangxi, China	EU215525	–
<i>Liuxalus hainanus</i>	LJT V15	Hainan, China	KC465826	–
<i>Theloderma albopunctatum</i>	Ta1	Kon Tum, Vietnam	KT461884	–
<i>Theloderma albopunctatum</i>	VNMN JR2887	Tam Dao, Vinh Phuc, Vietnam	KU244375	KU244431
<i>Theloderma annae</i>	IEBR 3732	Hoa Binh, Vietnam	LC168170	–
<i>Theloderma asperum</i>	ZRC 1.1.9321	Fraser Hill, Malaysia	GQ204725	–
<i>Theloderma auratum</i>	ZMMU NAP 064022	Kon Tum, Vietnam	MG917772	–
<i>Theloderma baibengense</i>	YPX 31940	Motuo, Xizang, China	KU981089	–
<i>Theloderma baibengense</i>	YPX37270	Motuo, Xizang, China	KU243080	–
<i>Theloderma bicolor</i>	YPX31244	Jingdong, Yunnan, China	KY495634	–
<i>Theloderma corticale</i>	MVZ 223905	Tam Dao, Vinh Phuc, Vietnam	KU244364	KU244452
<i>Theloderma gordonii</i>	MVZ 226469	Tam Dao, Vinh Phuc, Vietnam	KU244363	KU244451
<i>Theloderma horridum</i>	KUHE 52582	Negeri Sembilan, Malaysia	LC012861	–
<i>Theloderma lacustrinum</i>	NCSM 84682	Vientiane, Laos	KX095245	–
<i>Theloderma laeve</i>	VNMN 4403	Gia Lai, Vietnam	LC012846	–
<i>Theloderma lateriticum</i>	VNMN 1216	Tay Yen Tu, Bac Giang, Vietnam	LC012851	–
<i>Theloderma leporosum</i>	LJT W46	Malaysia	KC465841	–
<i>Theloderma licin</i>	MVZ 9458	Indonesia	KU244368	KU244447
<i>Theloderma moloch</i>	YPX 31941	Motuo, Xizang, China	KU243081	–
<i>Theloderma moloch</i>	GXNU YU000115	Yingjiang, Yunnan, China	MT509809	–
<i>Theloderma nebulosum</i>	ROM 39588	Kon Tum, Vietnam	LC012845	–
<i>Theloderma palliatum</i>	NAP02516	Lam Dong, Vietnam	KT461895	–
<i>Theloderma petilum</i>	HNUE MNA.2012.0001	Dien Bien, Vietnam	KJ802925	–
<i>Theloderma phrynoderma</i>	CAS247910	Tanintharyi, Myanmar	KJ128283	KU244449
<i>Theloderma rhododiscus</i>	CIB GX200807017	Guangxi, China	LC012842	–
<i>Theloderma ryabovi</i>	VNMN 3924	Kon Tum, Vietnam	LC012860	–
<i>Theloderma stellatum</i>	ZMMU NAP 03961	Nakhonnayok, Thailand	KT461917	–
<i>Theloderma truongsongnense</i>	VNMN 4402	Khanh Hoa, Vietnam	LC012847	–
<i>Theloderma vietnamense</i>	AMS R174047	Mondol Kiri, Cambodia	JN688171	KU244460
<i>Theloderma pyaukkya</i>	CAS 226113	Putao District, Kachin, Myanmar	KU244361	KU244443
<i>Theloderma pyaukkya</i>	CAS 236133	Mohynyin Township, Kachin, Myanmar	KU244360	KU244444
<i>Theloderma pyaukkya</i>	GXNU YU000116	Yingjiang, Yunnan, China	MT509810	MT522176
<i>Theloderma pyaukkya</i>	CAS 234869	Mintatt Township, Chin, Myanmar	KU244370	KU244445
<i>Theloderma pyaukkya</i>	CAS 234857	Mindat Township, Chin, Myanmar	KU244371	KU244446
<i>Theloderma albopunctatum</i>	AMS R173734	Kon Tum, Vietnam	KU244374	KU244436
<i>Theloderma albopunctatum</i>	AMS R173794	Kon Tum, Vietnam	KU244373	KU244435