

## **Four species in one: multigene analyses reveal phylogenetic patterns within Hardwicke's woolly bat, *Kerivoula hardwickii*-complex (Chiroptera, Vespertilionidae) in Asia**

**Vuong Tan Tu, Alexandre Hassanin, Neil M. Furey, Nguyen Truong Son, Gábor Csorba**

Table S1. Numbers assigned for collecting localities of specimens of five species within *K. hardwickii* complex used in our mtDNA sequence and morphological analyses

Table S2. Summary of genetic markers used (see material and methods for acronyms definition) and specimens that were morphologically examined (ME).

Table S3. Genbank ascension numbers included in phylogenetic reconstructions

Figure S4. Bayesian trees reconstructed from mtDNA genes for *Kerivoula* spp. and associated outgroups.

Figure S5. Bayesian tree of RAG2 for *Kerivoula* spp. and associated outgroups.

Figure S6. Bayesian tree of Supermatrix and SuperTRI for *Kerivoula* spp. and associated outgroups.

Figure S7. SuperTRI analyses.

Figure S8. Bayesian analyses of the eight independent genes.

Figure S9. Consensus (A) and Densitree (B) species tree of the genus *Kerivoula* and outgroups obtained from \*BEAST analyses of the seven independent nuclear genes. In A, the node labels are posterior probabilities (PP) (only node with PP>0.5 are presented). In B, bars indicate 95% HPD of the height of clades (only clades with more than 50% support are presented).

Table S10: Uncorrected pairwise p-distances calculated from the combination of mtDNA genes, *COI* and *Cytb* (1845 bp) and the concatenation of seven nuDNA genes (6214 bp) between 26 examined individuals (see text and Tab. S2 for more detail)

Figure S11. Chronogram reconstructed from the cytochrome b dataset.

Table S12. External and craniodental measurements (in mm) of studied *Kerivoula* spp.

Table S13. Character factor loadings for PCs, obtained from PCAs on log-transformed raw and standardized craniodental measurements of studied *Kerivoula hardwickii* s.l.

Table S1. Numbers assigned for collecting localities of specimens of five species within *K. hardwickii* complex used in our mtDNA sequence and morphological analyses

| Nº | Locality                                | Province        | Country   | Distribution |    |    |    |                       |
|----|-----------------------------------------|-----------------|-----------|--------------|----|----|----|-----------------------|
|    |                                         |                 |           | H1           | H2 | H3 | H4 | <i>K. kachinensis</i> |
| 1  | Ujung Kulon NP                          | West Java       | Indonesia | x            |    |    |    |                       |
| 3  | Bako National Park                      | Sarawak         | Malaysia  | x            |    |    |    |                       |
| 4  | Kubah NP, Kuching, Sarawak              | Sarawak         | Malaysia  | x            |    |    |    |                       |
| 5  | Bukit Aub, Sibü                         | Sarawak         | Malaysia  | x            |    |    |    |                       |
| 6  | Lambir Hills NP, Miri, Sarawak          | Sarawak         | Malaysia  | x            |    |    |    |                       |
| 7  | Monggis Sub Station (Lowland forest)    | Sabah           | Malaysia  | x            |    |    |    |                       |
| 8  | Endau Rompin Natinal Park               | Johor           | Malaysia  | x            |    |    |    |                       |
| 9  | Lembar Krau, Krau                       | Pahang          | Malaysia  | x            |    |    |    |                       |
| 10 | Langkawi Island; Kedah                  | Kedah           | Malaysia  | x            |    |    |    |                       |
| 11 | Khao Nor Chuchi Reserve                 | Krabi           | Thailand  | x            |    |    |    |                       |
| 12 | Con Dao NP, Con Son island              | Ba Ria-Vung Tau | Vietnam   | x            |    |    |    |                       |
| 13 | Vinh Cuu NR                             | Dong Nai        | Vietnam   | x            |    |    |    |                       |
| 14 | Cat Tien NP                             | Dong Nai        | Vietnam   | x            |    | x  |    |                       |
| 15 | Dalai Mt, Phnomsamkos                   | Pursat          | Cambodia  |              | x  |    |    |                       |
| 16 | Bu Gia Map NP                           | Binh Phuoc      | Vietnam   |              |    |    |    | x                     |
| 17 | Yok Don NP                              | Dak Lak         | Vietnam   |              | x  |    |    |                       |
| 18 | Virachey NP                             | Rattanakiri     | Cambodia  |              | x  | x  |    | x                     |
| 19 | Kbai Spean, Banteay Srey                | Siem Reap       | Cambodia  | x            |    |    |    |                       |
| 20 | Baray Mt, Preah Vihear Protected Forest | Preah Vihear    | Cambodia  | x            |    |    |    |                       |
| 21 | Dong Kanthung Region                    | Champasak       | Laos      | x            |    |    |    |                       |
| 22 | Dong Hua Sao                            | Champasak       | Laos      |              | x  |    |    |                       |
| 23 | Ngoc Linh mountainous area              | Kon Tum         | Vietnam   |              |    | x  |    |                       |
| 24 | Dong Amphan                             | Attapeu         | Laos      |              | x  | x  |    | x                     |

|    |                                                 |               |         |  |   |   |   |   |
|----|-------------------------------------------------|---------------|---------|--|---|---|---|---|
| 25 | Nam Pakkatan, Nakai Plateau                     | Khammouan     | Laos    |  |   | x |   |   |
| 26 | Vu Quang NP                                     | Ha Tinh       | Vietnam |  |   |   | x |   |
| 27 | Ban Houana                                      | Khammouan     | Laos    |  | x |   |   |   |
| 28 | Phou Khao Khouay, Tak Leuk                      | Vientiane     | Laos    |  | x |   |   | x |
| 29 | Pu Huong NR                                     | Nghe An       | Vietnam |  |   | x | x |   |
| 30 | Pu luong NR                                     | Thanh Hoa     | Vietnam |  | x |   |   | x |
| 31 | Nam Et NBCA                                     | Houaphan      | Laos    |  | x |   |   | x |
| 32 | Tam Dao NP                                      | Vinh Phuc     | Vietnam |  |   |   | x |   |
| 33 | Than Xa NR                                      | Thai Nguyen   | Vietnam |  |   |   | x |   |
| 34 | Na Hang NR                                      | Tuyen Quang   | Vietnam |  |   |   |   | x |
| 35 | Ba Be NP                                        | Bac Kan       | Vietnam |  |   |   | x | x |
| 36 | Nam Ha NBCA                                     | Louang Namtha | Laos    |  |   |   |   | x |
| 37 | Jing Xin County Provincial Nature Reserve       | Guangxi       | China   |  |   |   | x |   |
| 38 | Shuhuangshan Reserve                            | Hunan         | China   |  |   |   | x |   |
| 39 | Daweishan National Park                         | Hunan         | China   |  |   |   | x |   |
| 40 | Diaoluoshan National Forest Park, Hainan Island | Hainan        | China   |  |   |   | x |   |
| 41 | Different localities within Taiwan              | Taiwan        |         |  |   |   | x |   |
| 42 | Cherrapunjee                                    | Meghalaya     | India   |  |   |   |   | x |
| 43 | Mamankhe village, Taplejung District            |               | Nepal   |  |   |   | x |   |

Table S2. Summary of genetic markers used (see material and methods for acronyms definition) and specimens that were morphologically examined (ME). List of museum includes: MNHN (The Muséum national d'Histoire naturelle, Paris, France); IEBR (The Institute of Ecology and Biological Resource, Hanoi, Vietnam); HNHM (The Hungarian Natural History Museum, Budapest, Hungary); CBC (The Centre for Biodiversity Conservation, Royal University of Phnom Penh, Cambodia); RMNH (Rijksmuseum van Natuurlijke Histoire, Leiden, Netherlands) - USNM (Smithsonian National Museum of Natural History); PSU (The Prince of Songkla University, Songkhla, Thailand); HZM (The Harrison Zoological Museum, Sevenoaks, United Kingdom); ZMA(The Zoological Museum Amsterdam, Amsterdam, Netherlands); MHNG (Muséum d'histoire naturelle, Genève, Switzerland); NHMW (The Museum of Natural History, Vienna, Austria).

| Museum | DNA code  | Cataloge N°/<br>Field number | Taxon                | Haplotype | Locality                                | Province     | Country   | Genbank accession numbers: MH137299 - MH137612 (X=MH137) |      |      |       |       |      |       |      |        | ME |
|--------|-----------|------------------------------|----------------------|-----------|-----------------------------------------|--------------|-----------|----------------------------------------------------------|------|------|-------|-------|------|-------|------|--------|----|
|        |           |                              |                      |           |                                         |              |           | COI                                                      | Cytb | FBG  | HDAC1 | HDAC2 | RAG2 | RIOK3 | TuFM | ZFVE27 |    |
| MNHN   | VN11-1186 | VN11-1186                    | <i>M. muricola</i>   |           | Ngoc Linh mountain                      | Kon Tum      | Vietnam   | X299                                                     | X365 | X403 | X434  | X465  | X496 | X524  | X582 |        |    |
| MNHN   | VN11-1288 | VN11-1288                    | <i>H. harpia</i>     |           | Da Krong NR                             | Quang Tri    | Vietnam   | X300                                                     | X366 | X404 | X435  | X466  | X497 |       | X553 | X583   |    |
| MNHN   | VN11-1199 | MNHN 2013-1081               | <i>M. cyclotis</i>   |           | Ngoc Linh mountain                      | Kon Tum      | Vietnam   | KF772775                                                 | X367 | X405 | X436  | X467  | X498 | X525  | X554 | X584   |    |
| HNHM   | 20467     | 20467                        | <i>K. papillosa</i>  | A         | Khao Sok NP                             |              | Thailand  | X301                                                     | X368 | X406 | X437  | X468  | X499 | X526  | X555 | X585   |    |
| HNHM   | 21719     | 21719                        | <i>K. papillosa</i>  | B         | Seima BCA                               | Mondolkiri   | Cambodia  | X302                                                     | X369 | X407 | X438  | X469  | X500 | X527  | X556 | X586   |    |
| CBC    | VN11-1565 | CBC01262                     | <i>K. picta</i>      |           | O'Cheuteal, Preah Vihear PF             | Preah Vihear | Cambodia  | X303                                                     |      |      |       |       |      |       |      |        |    |
| CBC    | VN11-1576 | CBC01286                     | <i>K. picta</i>      |           | O'Cheuteal, Preah Vihear PF             | Preah Vihear | Cambodia  | X304                                                     | X370 | X408 | X439  | X470  | X501 | X528  | X557 | X587   |    |
| CBC    | VN11-1577 | CBC01282                     | <i>K. picta</i>      |           | Baray Mt, Preah Vihear Protected Forest | Preah Vihear | Cambodia  | X305                                                     | X371 | X409 | X440  | X471  | X502 |       | X558 | X588   |    |
| ZMA    |           | 17346                        | <i>K. hardwickii</i> | Kh1       | West Coast Kangean, Bay of Ketapang     | Kangean      | Indonesia |                                                          |      |      |       |       |      |       |      | x      |    |
| ZMA    | 17348     | 17348                        | <i>K. hardwickii</i> | Kh1       | West Coast Kangean, Bay of Ketapang     | Kangean      | Indonesia |                                                          | X372 |      |       |       |      |       |      |        |    |
| HNHM   | 21746     | 21746                        | <i>K. hardwickii</i> | Kh1       | Ujung Kulon NP                          | West Java    | Indonesia | X306                                                     | X373 | X410 | X441  | X472  | X503 | X529  | X559 | X589   | x  |
| IEBR   | VN11-0869 | T.180809.1                   | <i>K. hardwickii</i> | Kh1       | Phu Quoc, Kien Giang                    |              | Vietnam   |                                                          |      |      |       |       |      |       |      |        | x  |
| CBC    | VN11-1593 | CBC00946                     | <i>K. hardwickii</i> | Kh1       | Kbai Spean, Banteay Srey                | Seim Reap    | Cambodia  | X307                                                     | X374 | X411 | X442  | X473  | X504 | X530  | X560 | X590   | x  |
| CBC    | VN11-1622 | CBC01273                     | <i>K. hardwickii</i> | Kh1       | Baray Mt, Preah Vihear PF               | Preah Vihear | Cambodia  | X308                                                     | X375 | X412 | X443  | X474  |      | X531  |      | X591   | x  |
| CBC    | VN11-1623 | CBC01274                     | <i>K. hardwickii</i> | Kh1       | Baray Mt, Preah Vihear PF               | Preah Vihear | Cambodia  | X309                                                     | X376 | X413 | X444  | X475  | X505 | X532  | X561 | X592   | x  |
| USNM   |           | 141021                       | <i>K. h. engana</i>  | Kh1       | Engano Is                               |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| NHMW   |           | 30542                        | <i>K. hardwickii</i> | Kh1       | Bogor                                   |              | Indonesia |                                                          |      |      |       |       |      |       |      |        |    |
| RMNH   |           | 14808                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 14809                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 15218                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 15220                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 15221                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 15222                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 15223                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 15280                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| RMNH   |           | 15281                        | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   |           | 2006.35.8/21751              | <i>K. hardwickii</i> | Kh1       | W Java                                  |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   |           | 2013.21.1./24345             | <i>K. hardwickii</i> | Kh1       | Pangrango, Java                         |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| USNM   |           | 141590                       | <i>K. hardwickii</i> | Kh1       | W Java                                  |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| USNM   |           | 141591                       | <i>K. hardwickii</i> | Kh1       | W Java                                  |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| USNM   |           | 141592                       | <i>K. hardwickii</i> | Kh1       | W Java                                  |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| USNM   |           | 141593                       | <i>K. hardwickii</i> | Kh1       | W Java                                  |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| USNM   |           | 142455                       | <i>K. hardwickii</i> | Kh1       | W Borneo                                |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| USNM   |           | 217524                       | <i>K. hardwickii</i> | Kh1       | Temboan, Sulawesi                       |              | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |
| USNM   |           | 155274                       | <i>K. hardwickii</i> | Kh1       | Depok                                   | Java         | Indonesia |                                                          |      |      |       |       |      |       |      |        | x  |



| Museum | DNA code  | Cataloge N°/<br>Field number  | Taxon                 | Haplotype | Locality           | Province    | Country  | Genbank ascension numbers: MH137299 - MH137612 (X=MH137) |      |      |       |       |      |       |      |        | ME |
|--------|-----------|-------------------------------|-----------------------|-----------|--------------------|-------------|----------|----------------------------------------------------------|------|------|-------|-------|------|-------|------|--------|----|
|        |           |                               |                       |           |                    |             |          | COI                                                      | Cytb | FBG  | HDAC1 | HDAC2 | RAG2 | RIOK3 | TuFM | ZFVE27 |    |
| IEBR   |           | VDT05.002                     | <i>K. kachinensis</i> |           | Chu Mom Ray        |             | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| IEBR   |           | VDT05.003                     | <i>K. kachinensis</i> |           | Chu Mom Ray        |             | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| IEBR   |           | VDT05.004                     | <i>K. kachinensis</i> |           | Chu Mom Ray        |             | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| IEBR   |           | QHB007                        | <i>K. kachinensis</i> |           | Pu Huong           |             | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   | 21942     | 21942                         | <i>K. titania</i>     |           | Da Krong NR        | Quang Tri   | Vietnam  | X339                                                     | X395 | X429 | X460  | X491  | X519 | X548  | X577 | X608   | x  |
| HNHM   | 23034     | 23034                         | <i>K. titania</i>     |           | Pu Huong NR        | Nghe An     | Vietnam  | X340                                                     | X396 |      |       |       |      |       |      |        | x  |
| HNHM   | 23041     | 23041                         | <i>K. titania</i>     |           | Pu Huong NR        | Nghe An     | Vietnam  |                                                          | X397 |      |       |       |      |       |      |        | x  |
| MNHN   | CPV10-363 | CPV10-363                     | <i>K. titania</i>     |           | Virachey NP        | Rattanakiri | Cambodia | X341                                                     | X398 | X430 | X461  | X492  | X520 | X549  | X578 | X609   | x  |
| MNHN   | CPV10-399 | CPV10-399                     | <i>K. titania</i>     |           | Virachey NP        | Rattanakiri | Cambodia | X342                                                     | X399 | X431 | X462  | X493  | X521 | X550  | X579 | X610   | x  |
| MNHN   | CPV10-415 | CPV10-415                     | <i>K. titania</i>     |           | Virachey NP        | Rattanakiri | Cambodia | X343                                                     |      |      |       |       |      |       |      |        | x  |
| IEBR   | VN11-0002 | VN11-0002                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X344                                                     |      |      |       |       |      |       |      |        | x  |
| IEBR   | VN11-0009 | VN11-0009                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X345                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0010 | VN11-0010                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X346                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0011 | VN11-0011                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X347                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0012 | VN11-0012                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X348                                                     | X400 | X432 | X463  | X494  | X522 | X551  | X580 | X611   |    |
| IEBR   | VN11-0013 | VN11-0013                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X349                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0014 | VN11-0014                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X350                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0018 | VN11-0018                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X351                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0025 | VN11-0025                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X352                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0026 | VN11-0026                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X353                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0027 | VN11-0027                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X354                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0030 | VN11-0030                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X355                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0031 | VN11-0031                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X356                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0035 | VN11-0035                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X357                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0040 | VN11-0040                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X358                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-0044 | VN11-0044                     | <i>K. titania</i>     |           | Vu Quang NP        | Ha Tinh     | Vietnam  | X359                                                     |      |      |       |       |      |       |      |        | x  |
| IEBR   | VN11-0944 | VN11-0944                     | <i>K. titania</i>     |           | Than Xa NR         | Thai Nguyen | Vietnam  | X360                                                     |      |      |       |       |      |       |      |        | x  |
| IEBR   | VN11-0945 | VN11-0945                     | <i>K. titania</i>     |           | Than Xa NR         | Thai Nguyen | Vietnam  | X361                                                     |      |      |       |       |      |       |      |        | x  |
| MNHN   | VN11-1188 | VN11-1188                     | <i>K. titania</i>     |           | Ngoc Linh mountain | Kon Tum     | Vietnam  | X362                                                     | X401 | X433 | X464  | X495  | X523 | X552  | X581 | X612   |    |
| MNHN   | VN11-1193 | VN11-1193                     | <i>K. titania</i>     |           | Ngoc Linh mountain | Kon Tum     | Vietnam  | X363                                                     |      |      |       |       |      |       |      |        |    |
| IEBR   | VN11-1832 | T050412.4                     | <i>K. titania</i>     |           | Pu luong NR        | Thanh Hoa   | Vietnam  | X364                                                     | X402 |      |       |       |      |       |      |        | x  |
| HNHM   |           | 17975                         | <i>K. titania</i>     |           |                    | Thanh Hoa   | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   |           | 2007.27.8./ 21906             | <i>K. titania</i>     |           | Ba Be              | Bac Kan     | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   |           | 2007.50.5./ 22703             | <i>K. titania</i>     |           | Huong Hoa          | Quang Tri   | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   |           | 2012.30.14./ 23044            | <i>K. titania</i>     |           | Pu Huong           | Nghe An     | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   |           | 2005.81.58./ 21502 (holotype) | <i>K. titania</i>     |           | Seima              |             | Cambodia |                                                          |      |      |       |       |      |       |      |        | x  |
| HNHM   |           | 2006.34.27./ 21717 (paratype) | <i>K. titania</i>     |           | Seima              |             | Cambodia |                                                          |      |      |       |       |      |       |      |        | x  |
| IEBR   |           | QHB021                        | <i>K. titania</i>     |           | Pu Huong           |             | Vietnam  |                                                          |      |      |       |       |      |       |      |        | X  |
| IEBR   |           | QHB022                        | <i>K. titania</i>     |           | Pu Huong           |             | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |
| PSU    |           | IEBR XN-01                    | <i>K. titania</i>     |           | Xuan Nha           | Son La      | Vietnam  |                                                          |      |      |       |       |      |       |      |        | x  |

Table S3. Genbank ascension numbers included in phylogenetic reconstructions

| Species              | Corrected taxon name                | COI      | Cytb     | RAG2     | Locality                    | Locality        | Country    | Reference                     |
|----------------------|-------------------------------------|----------|----------|----------|-----------------------------|-----------------|------------|-------------------------------|
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | GU585636 | GU585665 |          | Langkawi Island; Kedah      | Kedah           | Malaysia   | Khan et al., 2010             |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | GU585637 |          |          | Langkawi Island; Kedah      | Kedah           | Malaysia   | Khan et al., 2010             |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          | GU585666 |          | Lembar Krau, Krau           | Pahang          | Malaysia   | Khan et al., 2010             |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540714 |          |          | Cat Tien NP                 | Dong Nai        | S-Vietnam  | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540712 |          |          | Cat Tien NP                 | Dong Nai        | S-Vietnam  | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | GU585631 | EU188768 |          | Monggis Sub Station         | Sabah           | Malaysia   | Khan et al., 2010             |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | GU585629 |          |          | Monggis Sub Station         | Sabah           | Malaysia   | Khan et al., 2010             |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | GU585635 | GU585640 |          | Bukit Aub, Sibiu            | Sarawak         | Malaysia   | Khan et al., 2010             |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          | FJ744253 |          | Lambir Hills NP, Miri       | Sarawak         | Malaysia   | Hasan & Abdullah, unpublished |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          | FJ744257 |          | Kubah NP, Kuching           | Sarawak         | Malaysia   | Hasan & Abdullah, unpublished |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          | FJ744255 | FJ744330 | Lambir Hills NP, Miri       | Sarawak         | Malaysia   | Hasan & Abdullah, unpublished |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          |          | FJ744331 | Lambir Hills NP, Miri,      | Sarawak         | Malaysia   | Hasan & Abdullah, unpublished |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          | EU188771 | FJ744332 | Bako National Park          | Sarawak         | Malaysia   | Hasan & Abdullah, unpublished |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          | FJ744259 | FJ744333 | Unknown                     |                 | Malaysia   | Hasan & Abdullah, unpublished |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) |          |          | FJ744334 | UNIMAS, Samarahan           |                 | Malaysia   | Hasan & Abdullah, unpublished |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | JQ365644 |          |          | Con Dao NP, Con Son island  | Ba Ria-Vung Tau | S-Vietnam  | Kruskop, 2011                 |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540706 |          |          | Endau Rompin Natinal Park   | Johor           | Malaysia   | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540708 |          |          | Dong Kanthung Region        | Champasak       | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540709 |          |          | Endau Rompin Natinal Park   | Johor           | Malaysia   | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540710 |          |          | Dong Kanthung Region        | Champasak       | Laos       | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540715 |          |          | Khao Nor Chuchi Reserve     | Krabi           | S-Thailand | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM540716 |          |          | Khao Nor Chuchi Reserve     | Krabi           | S-Thailand | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh1 (= <i>K. hardwickii</i> s.tri.) | HM914909 |          |          | Vinh Cuu NR                 | Dong Nai        | S-Vietnam  | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540664 |          |          | Nam Et NBCA                 | Houaphan        | C-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540667 |          |          | Dong Hua Sao                | Champasak       | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540668 |          |          | Ban Paam                    | Attapu          | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540669 |          |          | Yok Don NP                  | Dak Lak         | S-Vietnam  | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540670 |          |          | Vang Vieng                  | Vientiane       | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540671 |          |          | Nam Et NBCA                 | Houaphan        | C-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540672 |          |          | Ban Houana                  | Khammouan       | C-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540673 |          |          | Xe Kaman                    | Attapu          | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh2 (= <i>K. depressa</i> )         | HM540674 |          |          | Xe Kaman, Nam Kama          | Attapu          | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh3 (= <i>K. dongduongana</i> )     | JF443952 |          |          | Cat Tien NP                 | Dong Nai        | S-Vietnam  | Kruskop et al., unpublished   |
| <i>K. hardwickii</i> | Kh3 (= <i>K. dongduongana</i> )     | HM540686 |          |          | Nam Pakkatan, Nakai Plateau | Khammouan       | C-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh3 (= <i>K. dongduongana</i> )     | HM540687 |          |          | Ngoc Linh mountain          | QuangNam        | C-Vietnam  | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh3 (= <i>K. dongduongana</i> )     | HM540688 |          |          | Ngoc Linh mountain          | QuangNam        | C-Vietnam  | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh3 (= <i>K. dongduongana</i> )     | HM540690 |          |          | Bolaven Plateau, Nong Lam   | Champasak       | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh3 (= <i>K. dongduongana</i> )     | HM540704 |          |          | Ngoc Linh mountain          | QuangNam        | C-Vietnam  | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh3 (= <i>K. dongduongana</i> )     | HM540705 |          |          | Bolaven Plateau, Nong Lam   | Champasak       | S-Laos     | Francis et al., 2010          |
| <i>K. hardwickii</i> | Kh4 (= <i>K. furva</i> )            | KJ198822 |          |          |                             | Taiwan          |            | Kuo et al., 2014              |



|                                              |                          |          |          |          |                                  |               |         |                             |
|----------------------------------------------|--------------------------|----------|----------|----------|----------------------------------|---------------|---------|-----------------------------|
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198820 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198776 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198702 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198830 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198763 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198696 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198755 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198709 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198796 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198692 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198714 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198828 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | KJ198816 |          |          |                                  | Taiwan        |         | Kuo et al., 2014            |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | HM540676 |          |          | Daweishan National Park          | Hunan         | China   | Francis et al., 2010        |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | HM540678 |          |          | Daweishan National Park          | Hunan         | China   | Francis et al., 2010        |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | HM540679 |          |          | Daweishan National Park          | Hunan         | China   | Francis et al., 2010        |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | HM540681 |          |          | Daweishan National Park          | Hunan         | China   | Francis et al., 2010        |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | HM540682 |          |          | Jing Xin County Provincial       | Guangxi       | China   | Francis et al., 2010        |
| <i>K. hardwickii</i>                         | Kh4 (= <i>K. furva</i> ) | HM540683 |          |          | Shuhuangshan Reserve             | Hunan         | China   | Francis et al., 2010        |
| <i>K. titania*</i> (= <i>K. hardwickii</i> ) | Kh4 (= <i>K. furva</i> ) |          | JN112244 |          | Meilong Trail, Kaohsiung County  | Taiwan        |         | Wu et al., 2012             |
| <i>K. titania*</i> (= <i>K. hardwickii</i> ) | Kh4 (= <i>K. furva</i> ) |          | JN112243 |          | Meilan Trail, Kaohsiung County   | Taiwan        |         | Wu et al., 2012             |
| <i>K. titania*</i> (= <i>K. hardwickii</i> ) | Kh4 (= <i>K. furva</i> ) |          | JN112242 |          | Meilan Trail, Kaohsiung County   | Taiwan        |         | Wu et al., 2012             |
| <i>K. titania*</i> (= <i>K. hardwickii</i> ) | Kh4 (= <i>K. furva</i> ) |          | JN112241 |          | Meilong Trail, Kaohsiung County  | Taiwan        |         | Wu et al., 2012             |
| <i>K. titania*</i> (= <i>K. hardwickii</i> ) | Kh4 (= <i>K. furva</i> ) |          | JN112245 |          | Diaoluoshan National Forest Park | Hainan        | China   | Wu et al., 2012             |
| <i>K. titania*</i> (= <i>K. hardwickii</i> ) | Kh4 (= <i>K. furva</i> ) |          | JN112246 |          | Diaoluoshan National Forest Park | Hainan        | China   | Wu et al., 2012             |
| <i>K. kachinensis</i>                        |                          | GU684767 |          |          | Bu Gia Map NP                    | Binh Phuoc    | Vietnam | Kruskop et al., unpublished |
| <i>K. kachinensis</i>                        |                          | HM540734 |          |          | Nam Et NBCA, near Ban Chak       | Houaphan      | Laos    | Francis et al., 2010        |
| <i>K. kachinensis</i>                        |                          | HM540736 |          |          | Na Hang NR                       | Tuyen Quang   | Vietnam | Francis et al., 2010        |
| <i>K. kachinensis</i>                        |                          | HM540737 |          |          | Phou Khao Khouay, Tak Leuk       | Vientiane     | Laos    | Francis et al., 2010        |
| <i>K. kachinensis</i>                        |                          | HM540738 |          |          | Nam Ha NBCA                      | Louang Namtha | Laos    | Francis et al., 2010        |
| <i>K. kachinensis</i>                        |                          | HM540739 |          |          | Nam Et NBCA                      | Houaphan      | Laos    | Francis et al., 2010        |
| <i>K. kachinensis</i>                        |                          | HM540740 |          |          | Bolaven Plateau, Nong Lam        | Champasak     | Laos    | Francis et al., 2010        |
| <i>K. kachinensis</i>                        |                          | HM540741 |          |          | Lak Sao                          | Khammouan     | Laos    | Francis et al., 2010        |
| <i>K. kachinensis</i>                        |                          |          | JQ044697 | JQ044707 | Cherrapunjee                     | Meghalaya     | India   | Ruedi et al., 2012          |
| <i>K. kachinensis</i>                        |                          |          | AJ841969 |          | Dong Amphang, Attapeu            |               | Laos    | Stadelmann et al., 2004     |
| <i>K. titania</i>                            |                          | HM540759 |          |          | Ban Houana                       | Khammouan     | Laos    | Francis et al., 2010        |
| <i>K. titania</i>                            |                          | HM540760 |          |          | Ngoc Linh mountain               | Quang Nam     | Vietnam | Francis et al., 2010        |
| <i>K. titania</i>                            |                          | HM540766 |          |          | Xe Kaman, Nam Kama               | Attapu        | Laos    | Francis et al., 2010        |
| <i>K. titania</i>                            |                          | HM540767 |          |          | Xe Kaman, Nam Kama               | Attapu        | Laos    | Francis et al., 2010        |
| <i>K. titania</i>                            |                          | HM540769 |          |          | Na Hang NR                       | Tuyen Quang   | Vietnam | Francis et al., 2010        |
| <i>K. titania</i>                            |                          | HM540771 |          |          | Na Hang NR                       | Tuyen Quang   | Vietnam | Francis et al., 2010        |
| <i>K. titania</i>                            |                          | HM540772 |          |          | Ban Xam Kang, Hin Nam No         | Khammouan     | Laos    | Francis et al., 2010        |
| <i>K. cf. papillosa</i>                      |                          |          | AJ841970 |          | NamET, Houaphan                  |               | Laos    | Stadelmann et al., 2004     |

|                      |  |          |          |          |                                    |           |          |                                                      |
|----------------------|--|----------|----------|----------|------------------------------------|-----------|----------|------------------------------------------------------|
| <i>K. intermedia</i> |  | HM540732 |          |          |                                    | Pahang    | Malaysia | Francis et al., 2010                                 |
| <i>K. intermedia</i> |  |          | GU585658 |          | Lanjak Entimau Wildlife Sanctuary  | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. intermedia</i> |  |          | GU585653 |          | Lanjak Entimau Wildlife Sanctuary, | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. intermedia</i> |  | GU585601 |          |          | Lanjak Entimau Wildlife Sanctuary  | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. intermedia</i> |  | GU585602 | GU585652 |          | Lanjak Entimau Wildlife Sanctuary  | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. intermedia</i> |  |          |          | FJ744341 | Krau Wildlife Reserve              | Pahang    | Malaysia | Hasan & Abdullah, unpublished                        |
| <i>K. intermedia</i> |  |          |          | FJ744343 | Krau Wildlife Reserve              | Pahang    | Malaysia | Hasan & Abdullah, unpublished                        |
| <i>K. intermedia</i> |  | HM540731 |          |          |                                    | Sabah     | Malaysia | Francis et al., 2010                                 |
| <i>K. intermedia</i> |  | GU585599 | EU188790 | FJ744342 | Krau Wildlife Reserve              | Pahang    | Malaysia | Khan et al., 2010<br>Hasan & Abdullah, unpublished   |
| <i>P. jagorii</i>    |  | HM541207 |          |          |                                    | Vientiane | Laos     | Francis et al., 2010                                 |
| <i>P. jagorii</i>    |  | HM541209 |          |          |                                    | Champasak | Laos     | Francis et al., 2010                                 |
| <i>P. jagorii</i>    |  | HM541211 |          |          |                                    | Khammouan | Laos     | Francis et al., 2010                                 |
| <i>P. jagorii</i>    |  | HM541213 |          |          |                                    | Khammouan | Laos     | Francis et al., 2010                                 |
| <i>P. jagorii</i>    |  | HM541214 |          |          |                                    | Champasak | Laos     | Francis et al., 2010                                 |
| <i>P. jagorii</i>    |  | HM541215 |          |          |                                    | Khammouan | Laos     | Francis et al., 2010                                 |
| <i>P. jagorii</i>    |  | HM541216 |          |          |                                    | Champasak | Laos     | Francis et al., 2010                                 |
| <i>K. krauensis</i>  |  | HM540742 |          |          | Krau Wildlife Reserve              | Pahang    | Malaysia | Francis et al., 2010                                 |
| <i>K. lenis</i>      |  | HM540721 |          |          | Xe Kaman                           | Attapu    | Laos     | Francis et al., 2010                                 |
| <i>K. lenis</i>      |  | GU585595 | EU188772 |          | Krau Wildlife Reserve              | Pahang    | Malaysia | Khan et al., 2010                                    |
| <i>K. lenis</i>      |  | GU585596 | EU188773 |          | Kubah National Park                | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. lenis</i>      |  | JF443954 |          | AY141035 | Cat Tien NP, Dong Nai              | Cattien   | Vietnam  | Kruskop et al., unpublished;<br>Hoofer et al., 2003; |
| <i>K. lenis</i>      |  |          | FJ744250 |          | Niah NP, Miri                      |           | Malaysia | Hasan & Abdullah, unpublished                        |
| <i>K. lenis</i>      |  |          | FJ744251 | FJ744329 | Loagan Bunut NP, Miri              |           | Malaysia | Hasan & Abdullah, unpublished                        |
| <i>K. lenis?</i>     |  | HM540717 |          |          |                                    | Sabah     | Malaysia | Francis et al., 2010                                 |
| <i>K. lenis?</i>     |  | HM540718 |          |          |                                    | Johor     | Malaysia | Francis et al., 2010                                 |
| <i>K. lenis?</i>     |  | HM540722 |          |          |                                    | Attapu    | Laos     | Francis et al., 2010                                 |
| <i>K. minuta</i>     |  | GU585638 |          |          | Pahang, Taman Negara               | Pahang    | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585594 | EU188776 |          | Monggis Sub Station, Sabah         | Sabah     | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585605 | EU188777 |          | Kubah National Park                | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585604 |          |          | Mount Penrisen                     | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585612 | GU585641 |          | Kuala Atok, Taman Negara           | Pahang    | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585608 |          |          | Kuala Atok, Taman Negara           | Pahang    | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585613 |          |          | Kuala Atok, Taman Negara           | Pahang    | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585606 | GU585643 |          | Kuala Atok, Taman Negara           | Pahang    | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585610 | GU585644 |          | Bukit Aub, Sibit                   | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585609 | GU585659 |          | Lanjak Entimau Wildlife Sanctuary  | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  | GU585592 | GU585660 |          | Lanjak Entimau Wildlife Sanctuary  | Sarawak   | Malaysia | Khan et al., 2010                                    |
| <i>K. minuta</i>     |  |          | FJ744267 |          | Batang Ai NP, Sri Aman             |           | Malaysia | Hasan & Abdullah, unpublished                        |
| <i>K. minuta</i>     |  |          | FJ744268 |          | Unknown                            |           | Malaysia | Hasan & Abdullah, unpublished                        |
| <i>K. minuta</i>     |  |          | FJ744266 |          | Unknown                            |           | Malaysia | Hasan & Abdullah, unpublished                        |
| <i>K. minuta</i>     |  |          | FJ744270 |          | Unknown                            |           | Malaysia | Hasan & Abdullah, unpublished                        |

|                       |  |          |          |          |                                  |          |          |                                                     |
|-----------------------|--|----------|----------|----------|----------------------------------|----------|----------|-----------------------------------------------------|
| <i>K. minuta</i>      |  | GU585607 | EU188774 | FJ744337 | Krau Wildlife Reserve            | Pahang   | Malaysia | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. minuta</i>      |  |          | FJ744265 | FJ744340 | Unknown                          | Malaysia |          | Hasan & Abdullah, unpublished                       |
| <i>K. minuta</i>      |  | HM540743 |          |          |                                  | Sabah    | Malaysia | Francis et al., 2010                                |
| <i>K. minuta</i>      |  | HM540744 |          |          |                                  | Sabah    | Malaysia | Francis et al., 2010                                |
| <i>K. minuta</i>      |  | HM540745 |          |          |                                  | Krabi    | Thailand | Francis et al., 2010                                |
| <i>K. minuta</i>      |  | HM540746 |          |          |                                  | Pahang   | Malaysia | Francis et al., 2010                                |
| <i>K. minuta</i>      |  | HM540748 |          |          |                                  | Johor    | Malaysia | Francis et al., 2010                                |
| <i>K. minuta</i>      |  | GU585593 | EU188775 | FJ744338 | Monggis Sub Station, Sabah       | Sabah    | Malaysia | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. minuta</i>      |  |          | EU188778 | FJ744339 | Mount Penrisen                   | Sarawak  | Malaysia | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. papillosa</i>   |  | GU585624 |          |          | Sarawak, Similajau National Park | Sarawak  | Malaysia | Khan et al., 2010                                   |
| <i>K. papillosa</i>   |  | GU585623 |          |          | Sarawak, Similajau National Park | Sarawak  | Malaysia | Khan et al., 2010                                   |
| <i>K. papillosa</i>   |  | GU585625 | GU585663 |          | Niah National Park               | Sarawak  | Malaysia | Khan et al., 2010                                   |
| <i>K. papillosa</i>   |  | GU585620 | GU585664 |          | Kuala Atok, Taman Negara         | Pahang   | Malaysia | Khan et al., 2010                                   |
| <i>K. papillosa</i>   |  |          | EU188781 |          | Similajau National Park          | Pahang   | Malaysia | Khan et al., 2010                                   |
| <i>K. papillosa</i>   |  |          | EU188780 |          | Similajau National Park          | Sarawak  | Malaysia | Khan et al., 2010                                   |
| <i>K. papillosa</i>   |  |          | FJ744238 |          | Unknown                          |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa</i>   |  |          | FJ744239 |          | Unknown                          |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa</i>   |  |          | FJ744240 |          | Unknown                          |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa</i>   |  |          | FJ744241 |          | Unknown                          |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa</i>   |  |          | EU188782 | FJ744324 | Krau Wildlife Reserve            | Pahang   | Malaysia | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. papillosa</i>   |  | GU585619 | EU188783 | FJ744325 | Krau Wildlife Reserve            | Pahang   | Malaysia | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. papillosa</i>   |  | GU585618 | EU188784 | FJ744326 | Krau Wildlife Reserve            | Pahang   | Malaysia | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. papillosa</i>   |  | GU585622 | EU188785 | FJ744327 | Krau Wildlife Reserve            | Pahang   | Malaysia | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. papillosa</i>   |  | HM914930 |          |          | Bu Gia Map NP                    |          | Vietnam  | Francis et al., 2010                                |
| <i>K. papillosa L</i> |  |          | FJ744246 |          | Madai Cave, Tawau, Sabah         |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa L</i> |  |          | FJ744249 | FJ744328 | Niah NP, Miri                    |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa S</i> |  |          | FJ744244 | FJ744322 | Lambir Hills NP, Miri            |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa S</i> |  |          | FJ744245 | FJ744323 | Lambir Hills NP, Miri            |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa S</i> |  |          | FJ744243 |          | Lambir Hills NP, Miri            |          | Malaysia | Hasan & Abdullah, unpublished                       |
| <i>K. papillosa?</i>  |  | HM540726 |          |          |                                  | Johor    | Malaysia | Francis et al., 2010                                |
| <i>K. papillosa?</i>  |  | HM540724 |          |          |                                  | Sabah    | Malaysia | Francis et al., 2010                                |
| <i>K. papillosa?</i>  |  | HM540725 |          |          |                                  | Sabah    | Malaysia | Francis et al., 2010                                |
| <i>K. papillosa?</i>  |  | HM540729 |          |          |                                  | Johor    | Malaysia | Francis et al., 2010                                |
| <i>K. papillosa?</i>  |  | HM540730 |          |          |                                  | Pahang   | Malaysia | Francis et al., 2010                                |
| <i>K. pellucida</i>   |  | GU585639 |          |          |                                  | Pahang   | Malaysia | Khan et al., 2010                                   |
| <i>K. pellucida</i>   |  | GU585616 | GU585661 |          | Niah National Park               | Sarawak  | Malaysia | Khan et al., 2010                                   |
| <i>K. pellucida</i>   |  | GU585614 | GU585647 |          | Kuala Atok, Taman Negara         | Pahang   | Malaysia | Khan et al., 2010                                   |

|                     |  |          |          |          |                          |          |             |                                                     |
|---------------------|--|----------|----------|----------|--------------------------|----------|-------------|-----------------------------------------------------|
| <i>K. pellucida</i> |  | GU585615 | GU585648 |          | Kuala Atok, Taman Negara | Pahang   | Malaysia    | Khan et al., 2010                                   |
| <i>K. pellucida</i> |  | GU585634 | GU585662 |          | Kuala Atok, Taman Negara | Pahang   | Malaysia    | Khan et al., 2010                                   |
| <i>K. pellucida</i> |  | GU585617 | EU188786 |          | Similajau National Park  | Sarawak  | Malaysia    | Khan et al., 2010                                   |
| <i>K. pellucida</i> |  | GU585633 | EU188788 | FJ744335 | Krau Wildlife Reserve    | Pahang   | Malaysia    | Khan et al., 2010;<br>Hasan & Abdullah, unpublished |
| <i>K. pellucida</i> |  |          | FJ744264 | FJ744336 | Unknown                  | Malaysia |             | Hasan & Abdullah, unpublished                       |
| <i>K. pellucida</i> |  | HM540750 |          |          |                          | Johor    | Malaysia    | Francis et al., 2010                                |
| <i>K. pellucida</i> |  | HM540751 |          |          |                          | Johor    | Malaysia    | Francis et al., 2010                                |
| <i>K. pellucida</i> |  | HM540752 |          |          |                          | Johor    | Malaysia    | Francis et al., 2010                                |
| <i>K. pellucida</i> |  | HM540754 |          |          |                          | Pahang   | Malaysia    | Francis et al., 2010                                |
| <i>K. pellucida</i> |  |          | AB444717 |          |                          | Mindanao | Philippines | Bastian, unpublished                                |
| <i>K. pellucida</i> |  |          |          | GU328064 | East Kalimantan          |          | Indonesia   | Khan et al., 2010                                   |
| <i>K. sp.</i>       |  | GU585628 | GU585650 |          | Niah National Park       | Sarawak  | Malaysia    | Khan et al., 2010                                   |
| <b>Total</b>        |  | 129      | 67       | 25       |                          |          |             |                                                     |

Figure S4-A. Bayesian trees reconstructed from mtDNA genes for *Kerivoula* spp. and associated outgroups.

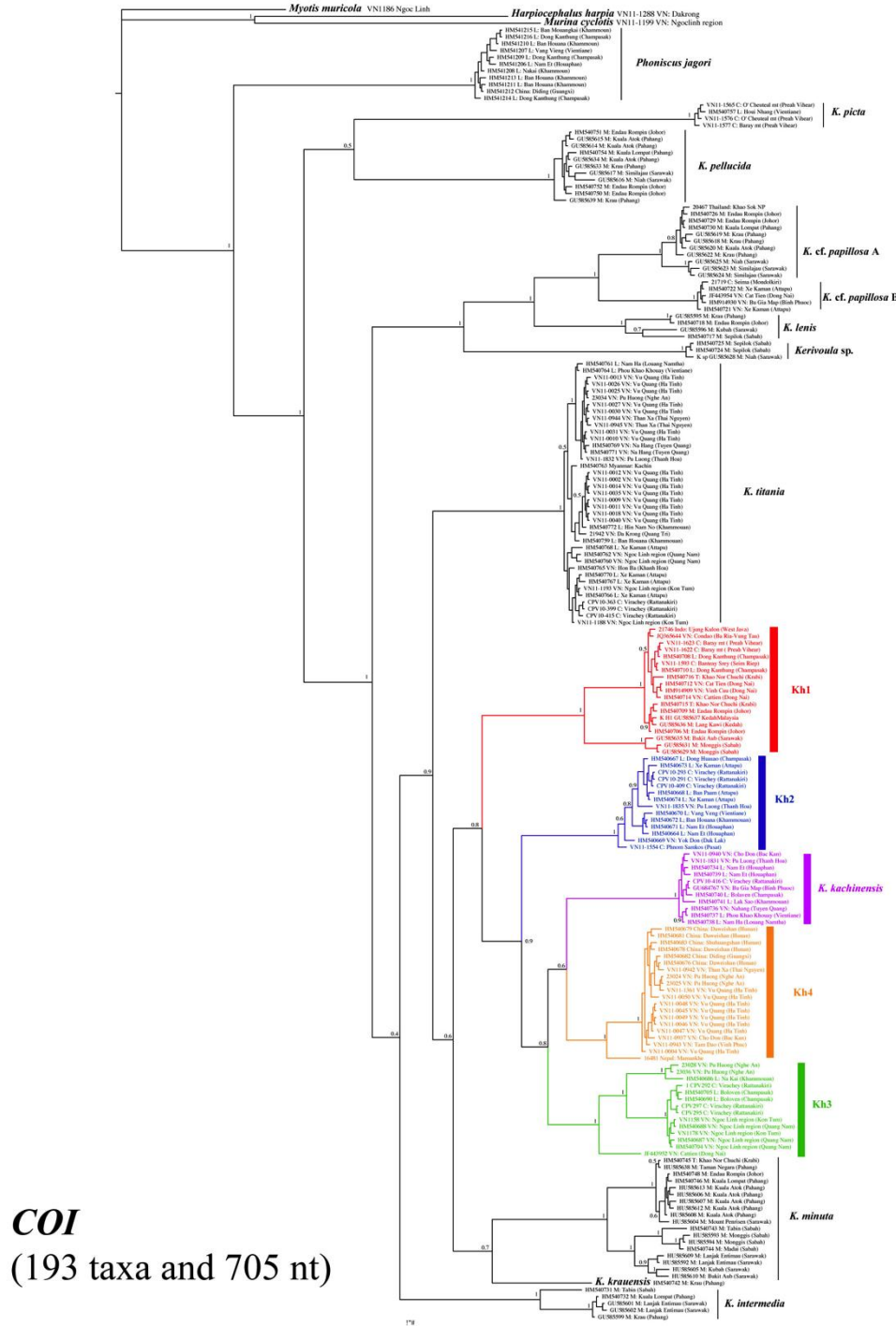
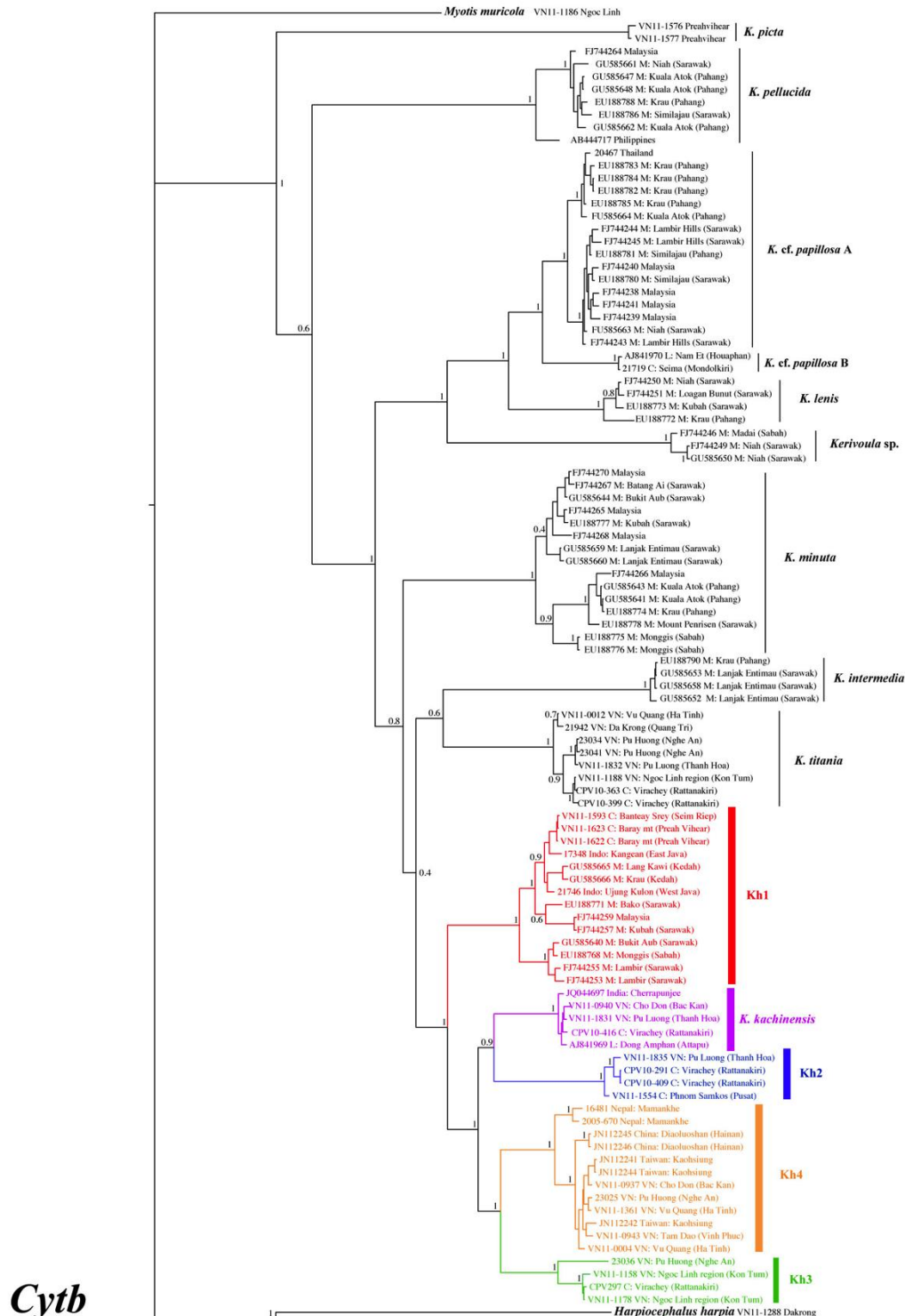
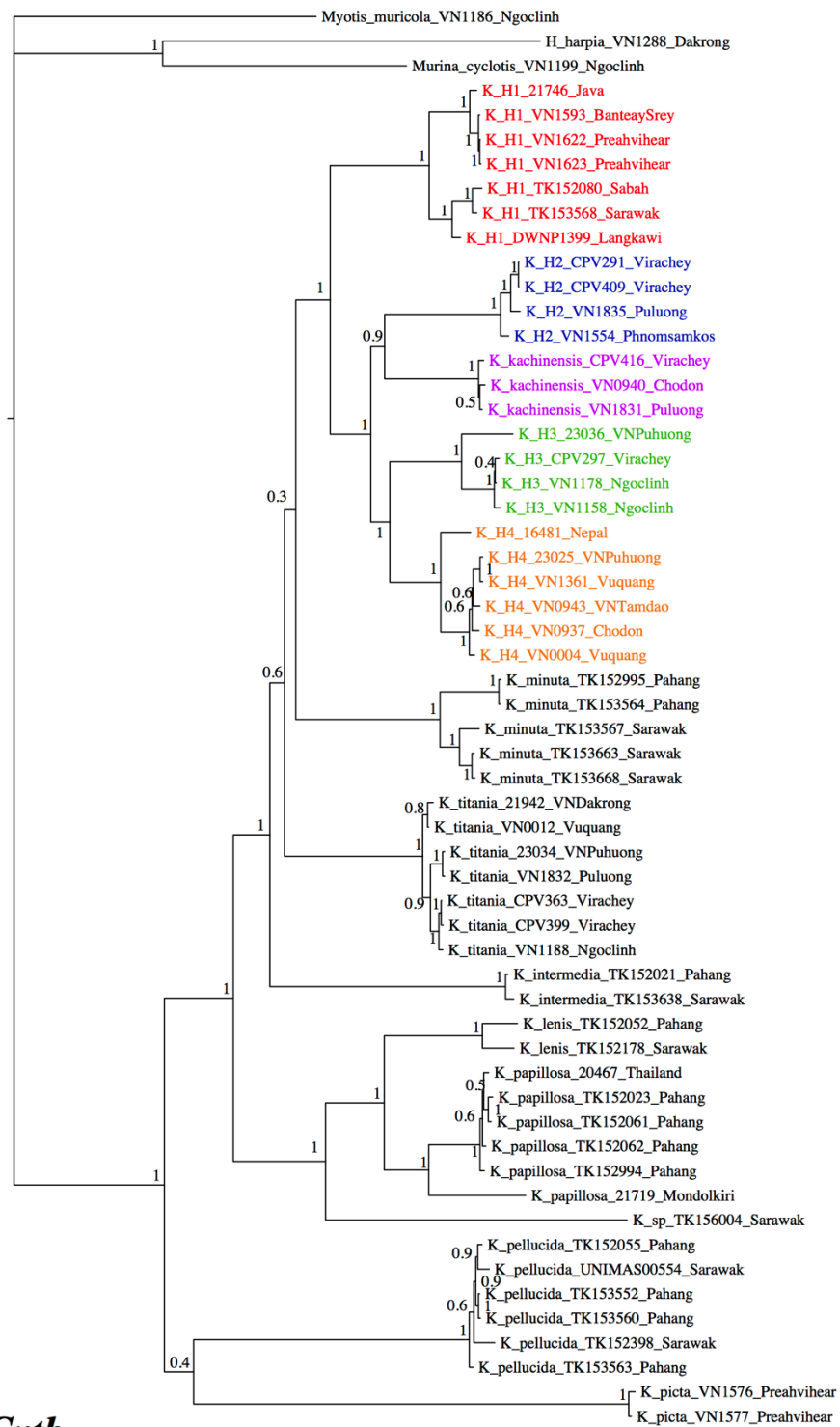


Figure S4-B. Bayesian trees reconstructed from mtDNA genes for *Kerivoula* spp. and associated outgroups.



(104 taxa and 1140 nt)

Figure S4-C. Bayesian trees reconstructed from mtDNA genes for *Kerivoula* spp. and associated outgroups.



***COI* + *Cytb***  
(58 taxa and 1845 nt)

figure S5. Bayesian tree of RAG2 for *Kerivoula* spp. and associated outgroups.

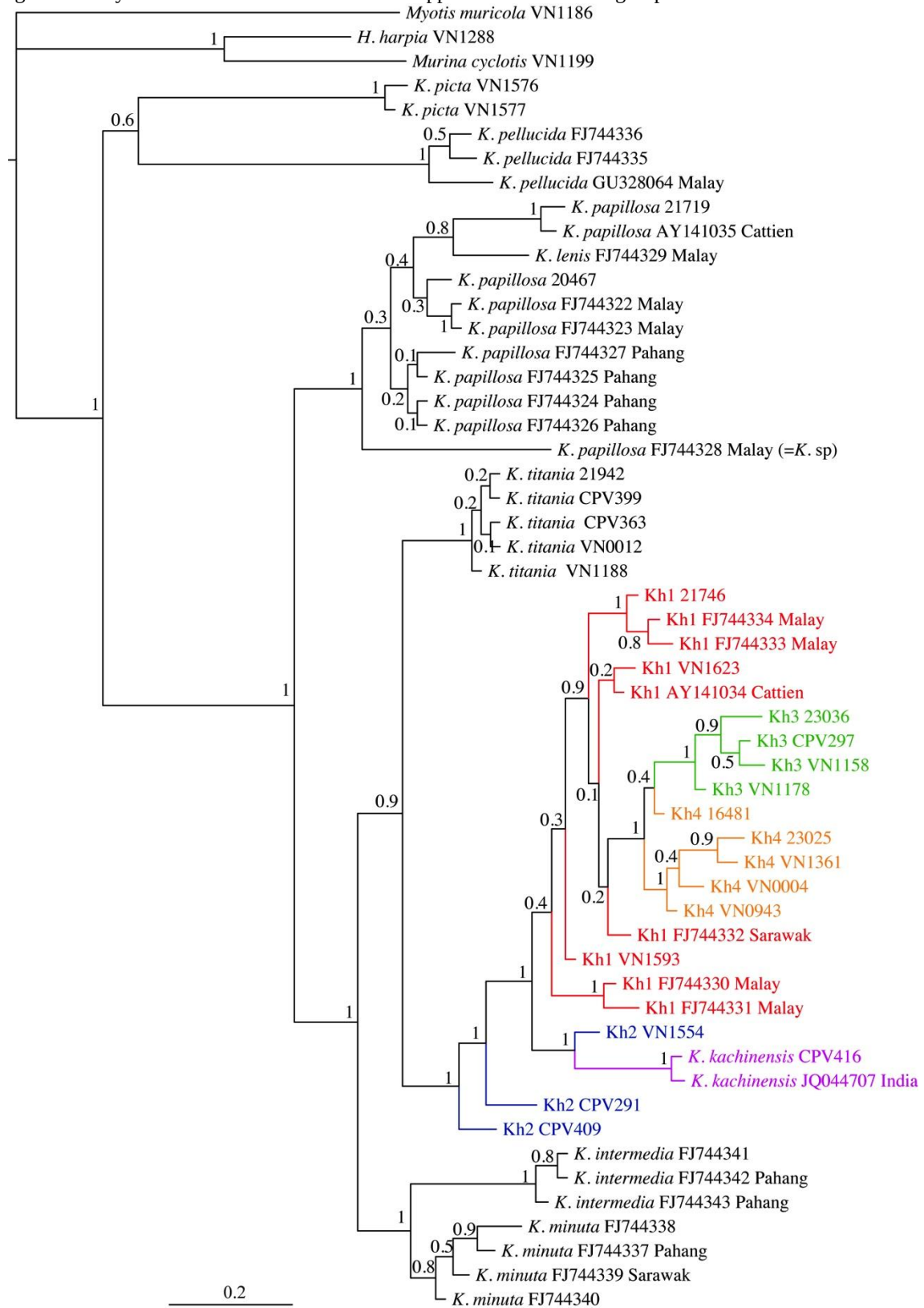




Figure S6. Bayesian tree of Supermatrix and SuperTRI for *Kerivoula* spp. and associated outgroups.

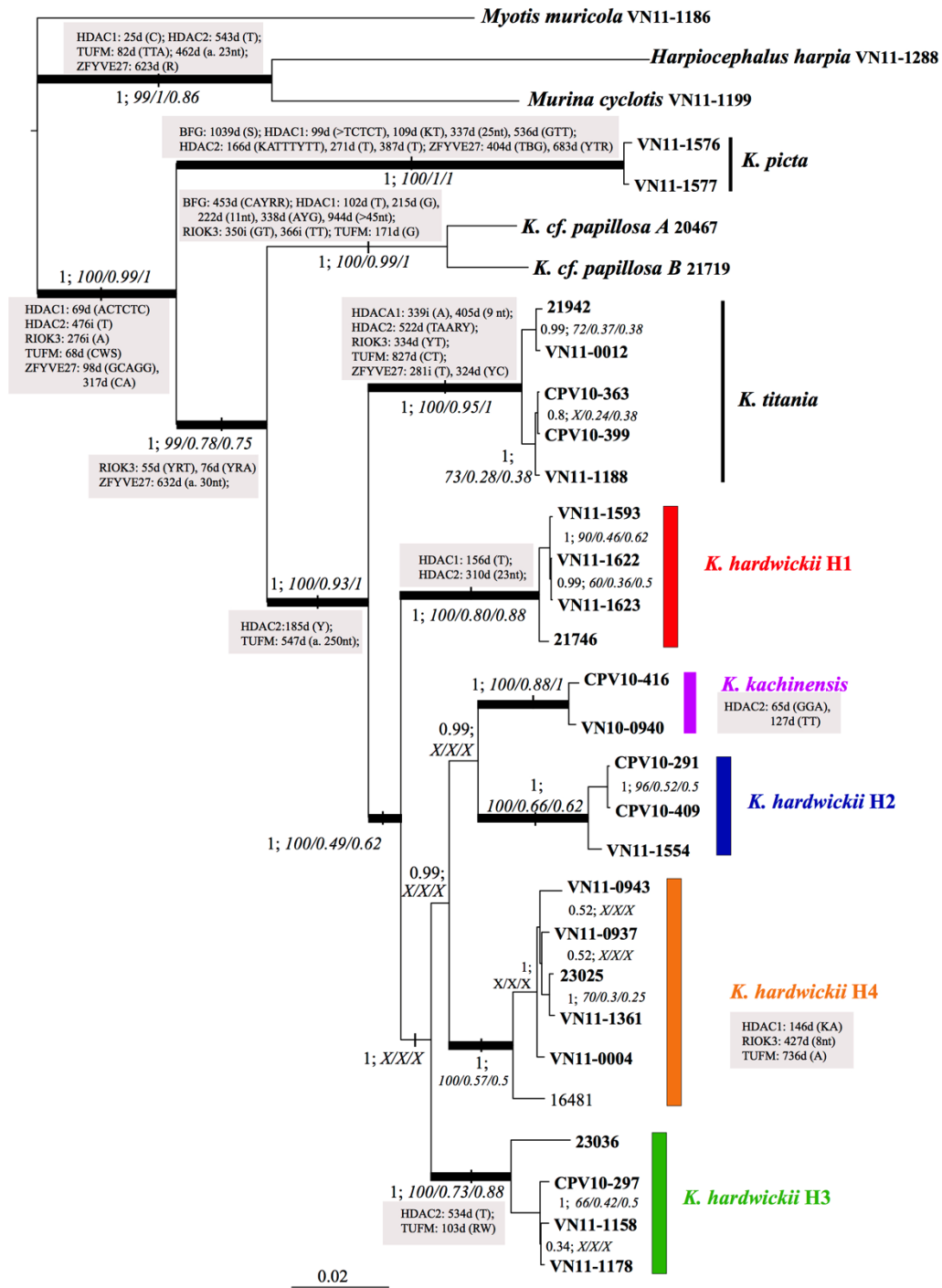


Figure S7-A. SuperTRI analyses (Super bootstrap analysis 50% majority-rule consensus tree)

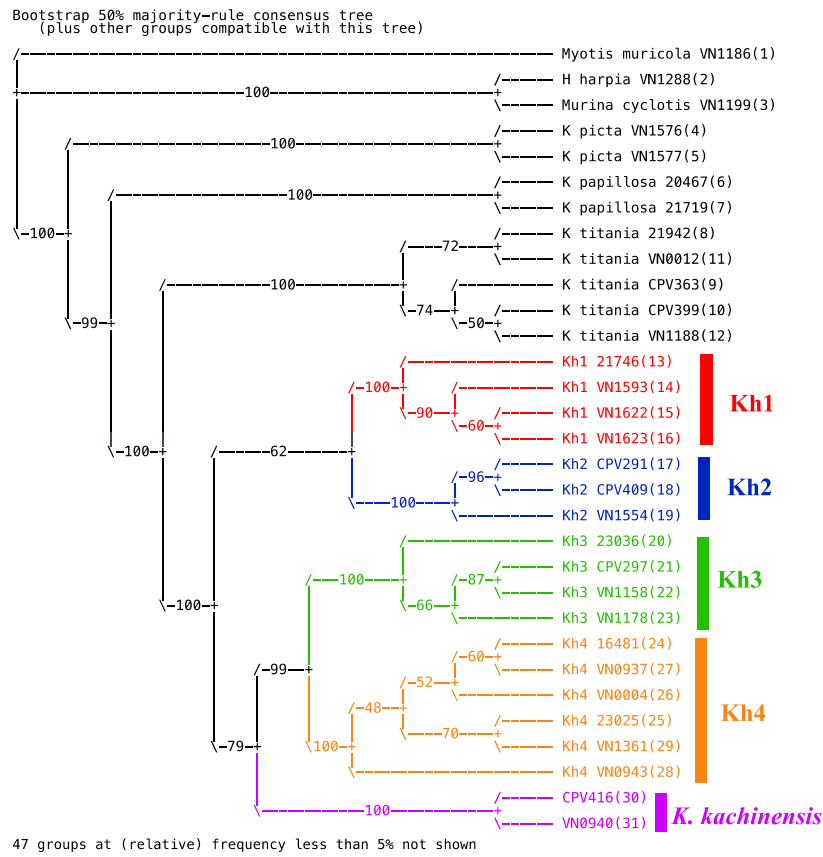


Figure S7-B. SuperTRI analyses (Mean posterior probabilities)

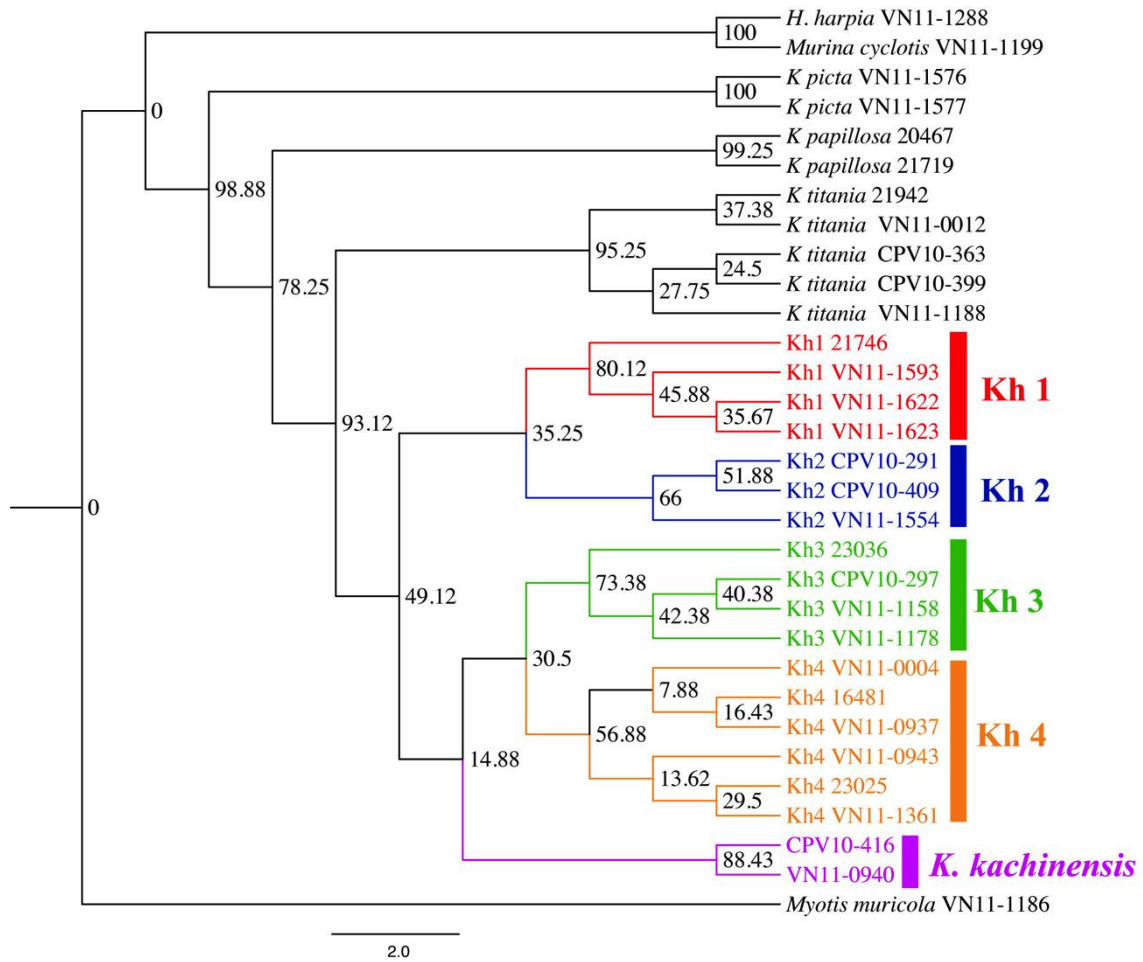


Figure S7-C. SuperTRI analyses (indices of reproducibility)

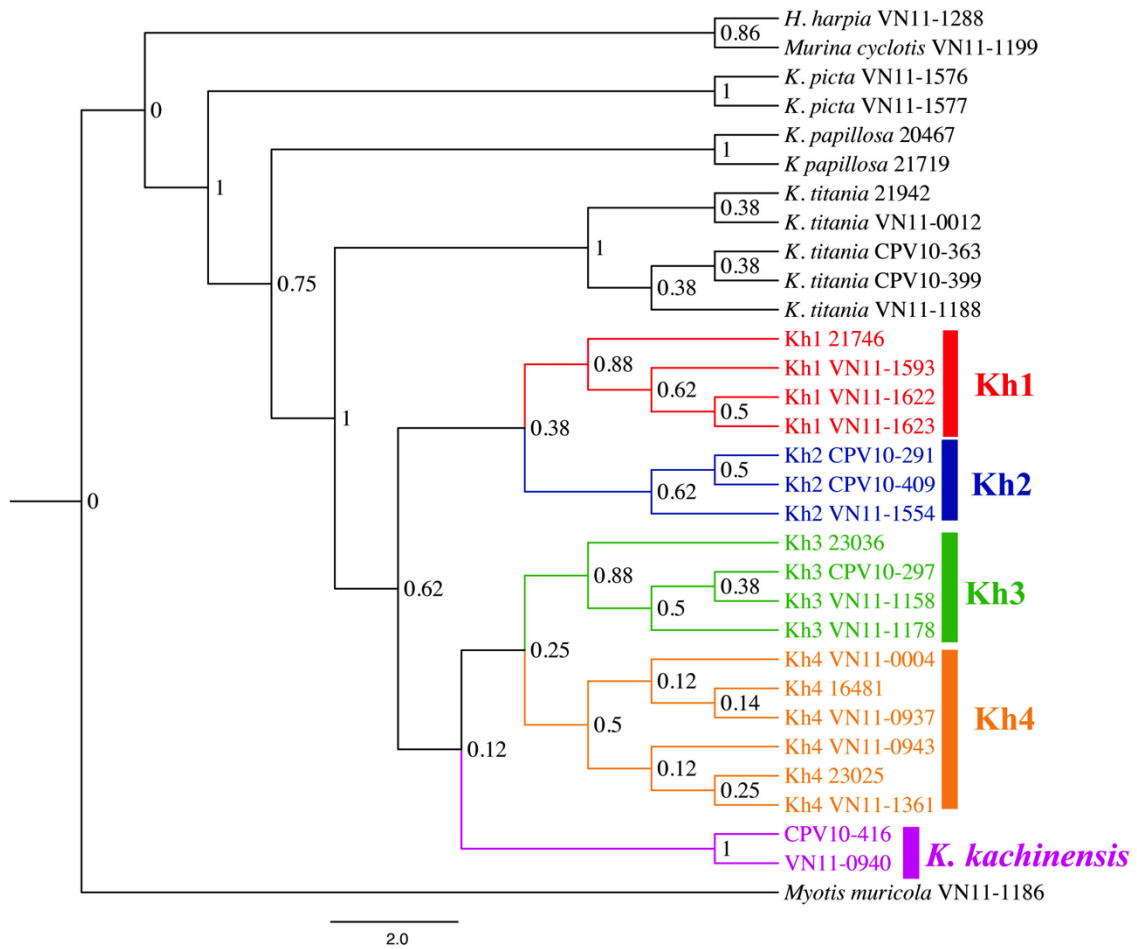
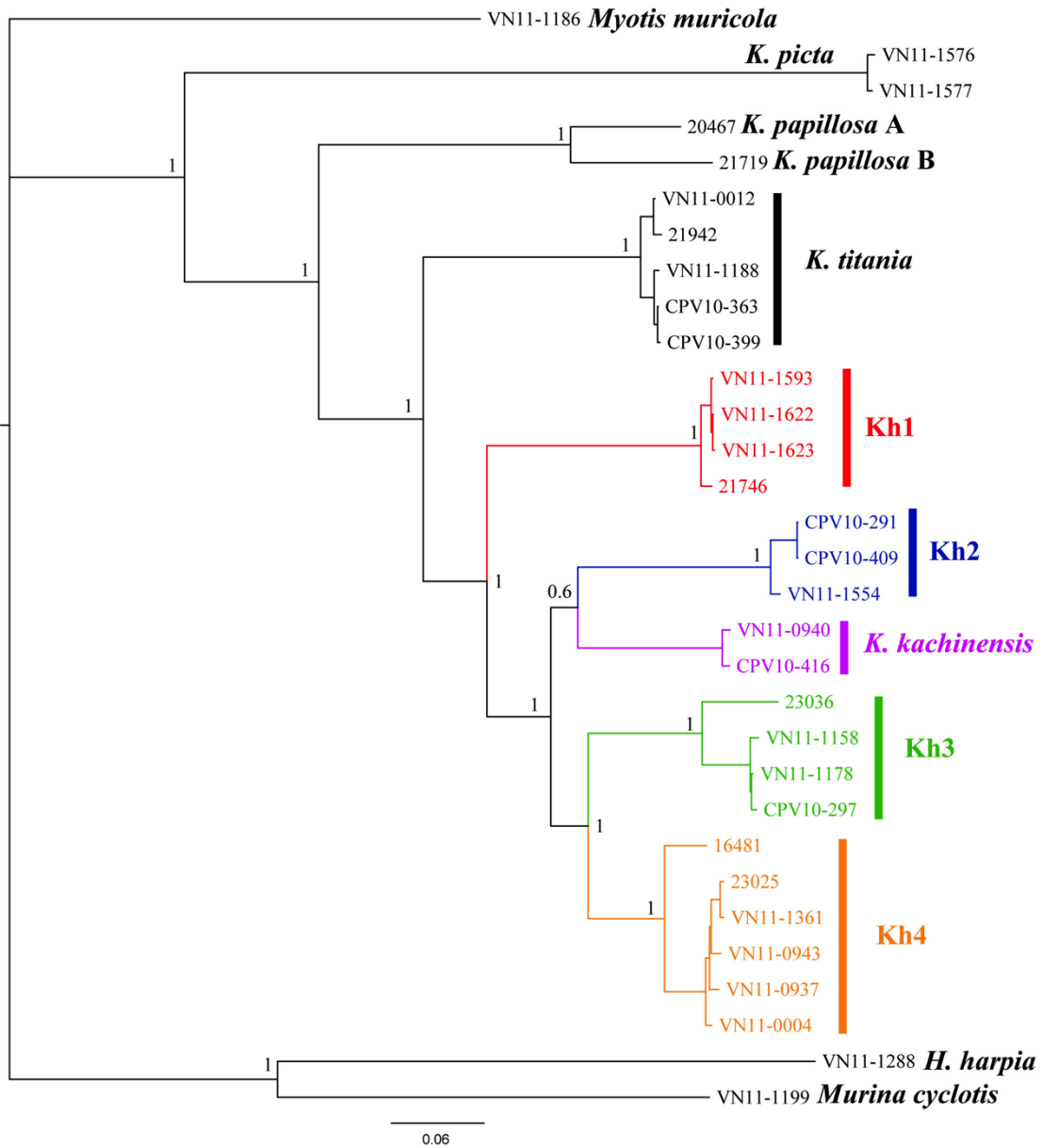
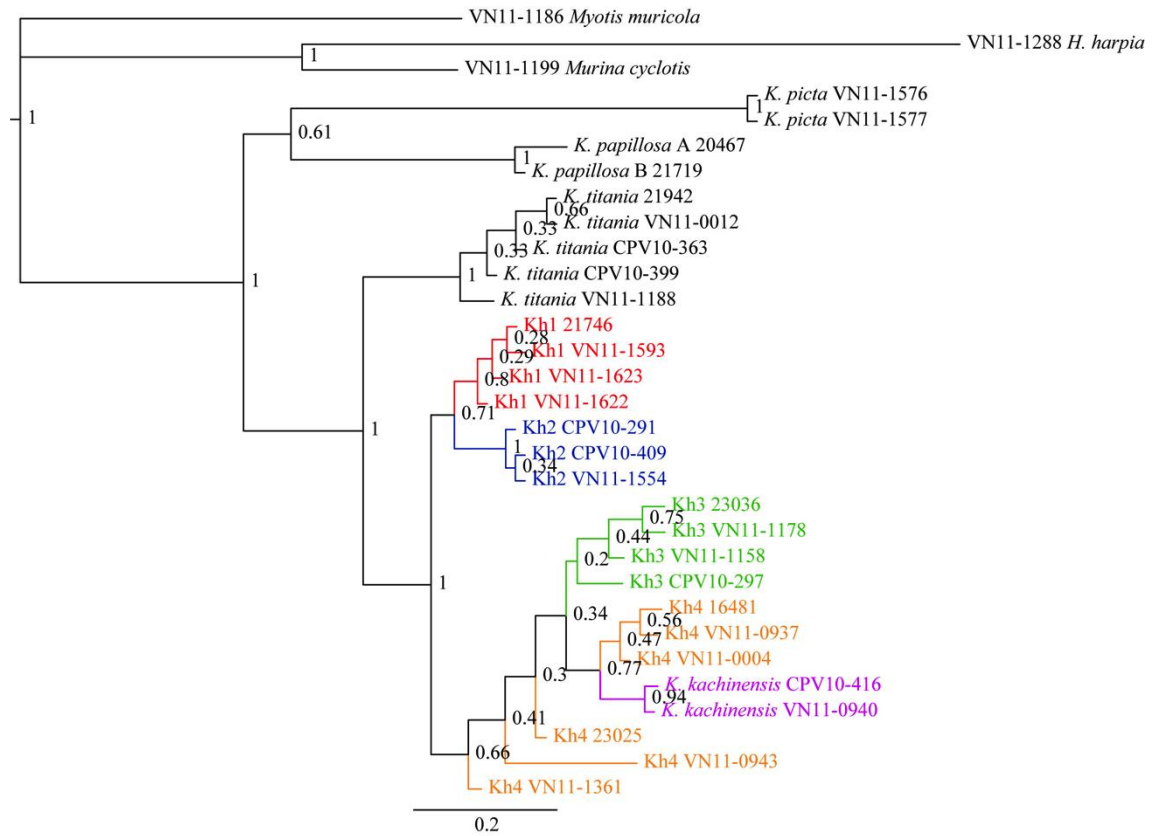


Figure S8-A. Bayesian analyses of the eight independent genes



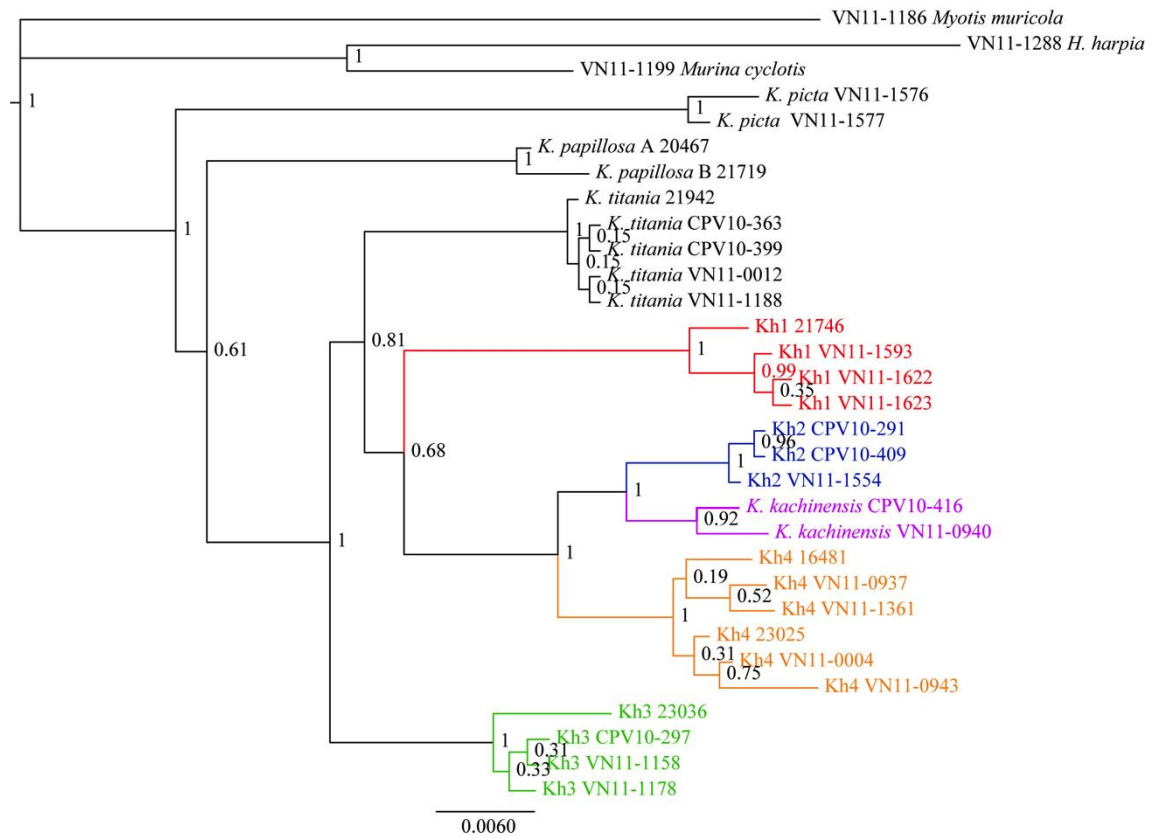
Bayesian tree reconstructed from analysis of alignments of concatenation COI+Cytb sequences (1,845 nt), using GTR+I+G model

Figure S8-B. Bayesian analyses of the eight independent genes



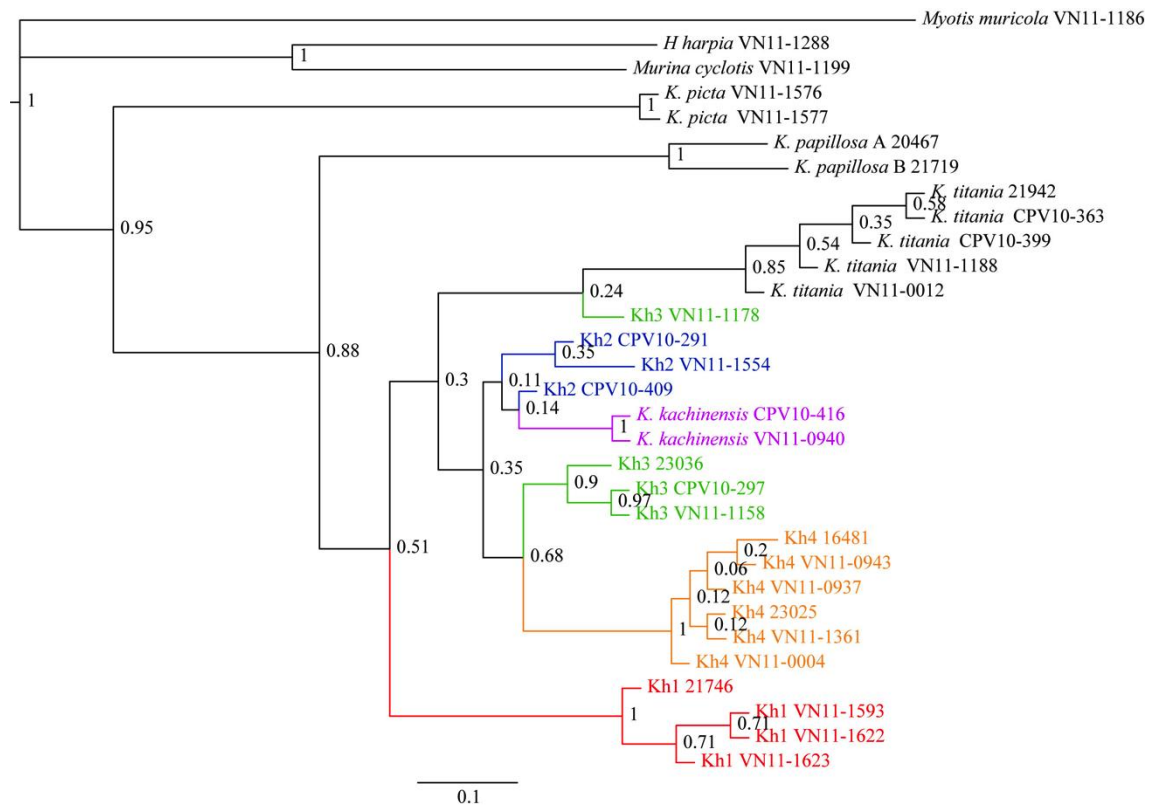
Bayesian tree reconstructed from analysis of partitioned alignment (1,300 nt, 2 indels) of FBG.  
using GTR+G model

Figure S8-C. Bayesian analyses of the eight independent genes



Bayesian tree reconstructed from analysis of pattitioned alignment (1090 nt) of HDAC1  
using HKY+G model

Figure S8-D. Bayesian analyses of the eight independent genes



Bayesian tree reconstructed from analysis of pattitioned alignment (647 nt) of HDAC2  
using GTR+G model



Figure S8-E. Bayesian analyses of the eight independent genes

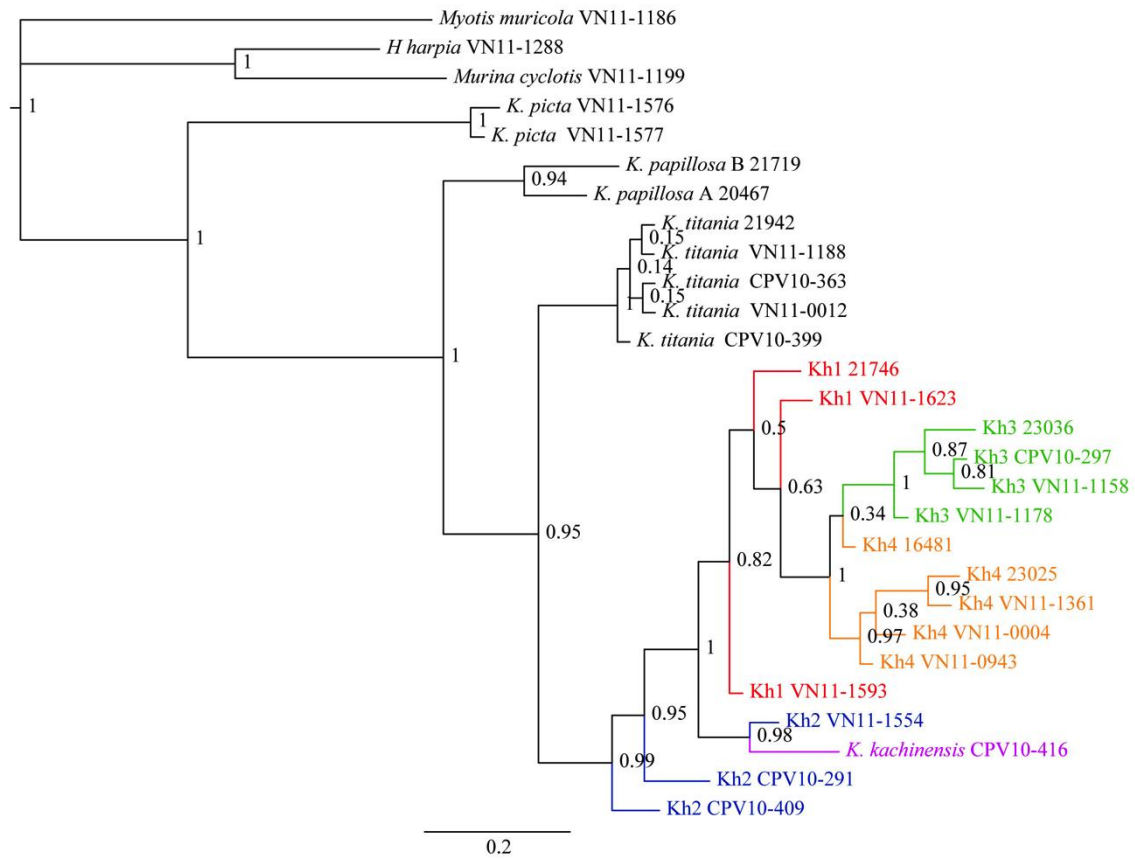


Figure S8-F. Bayesian analyses of the eight independent genes

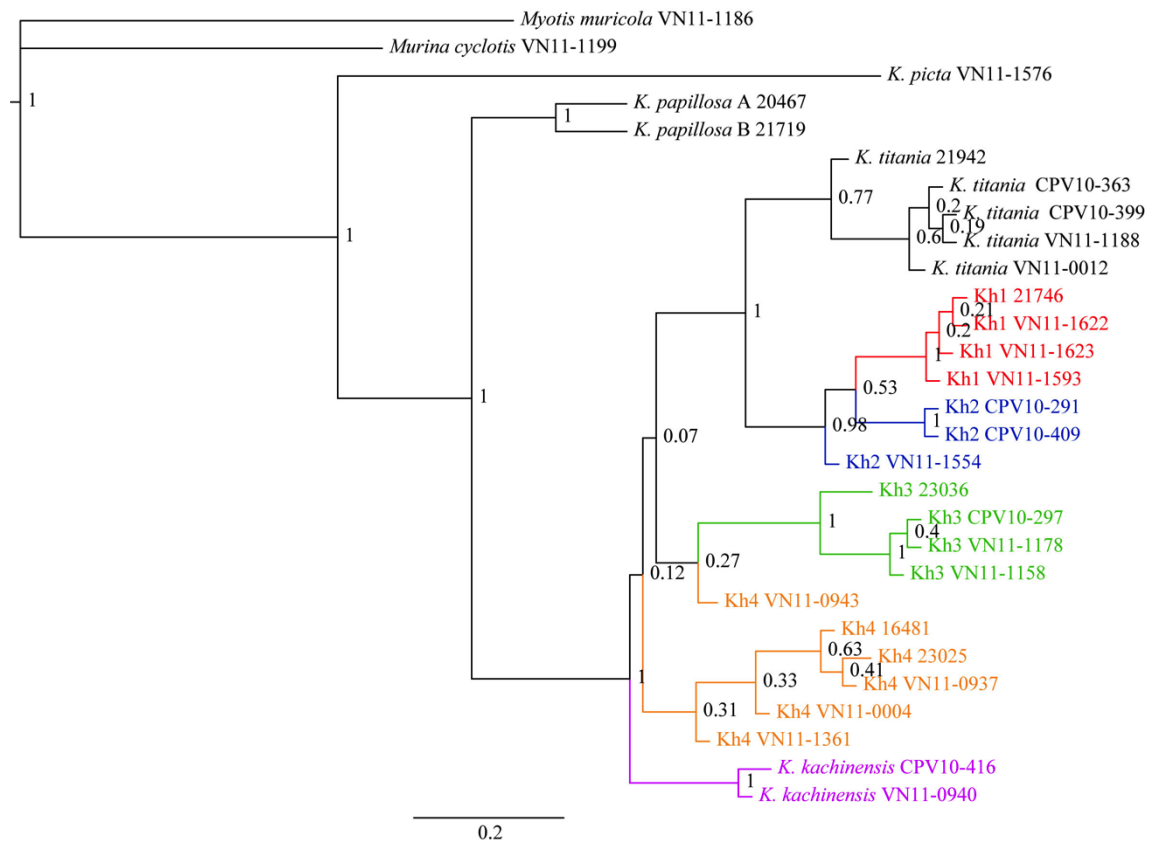
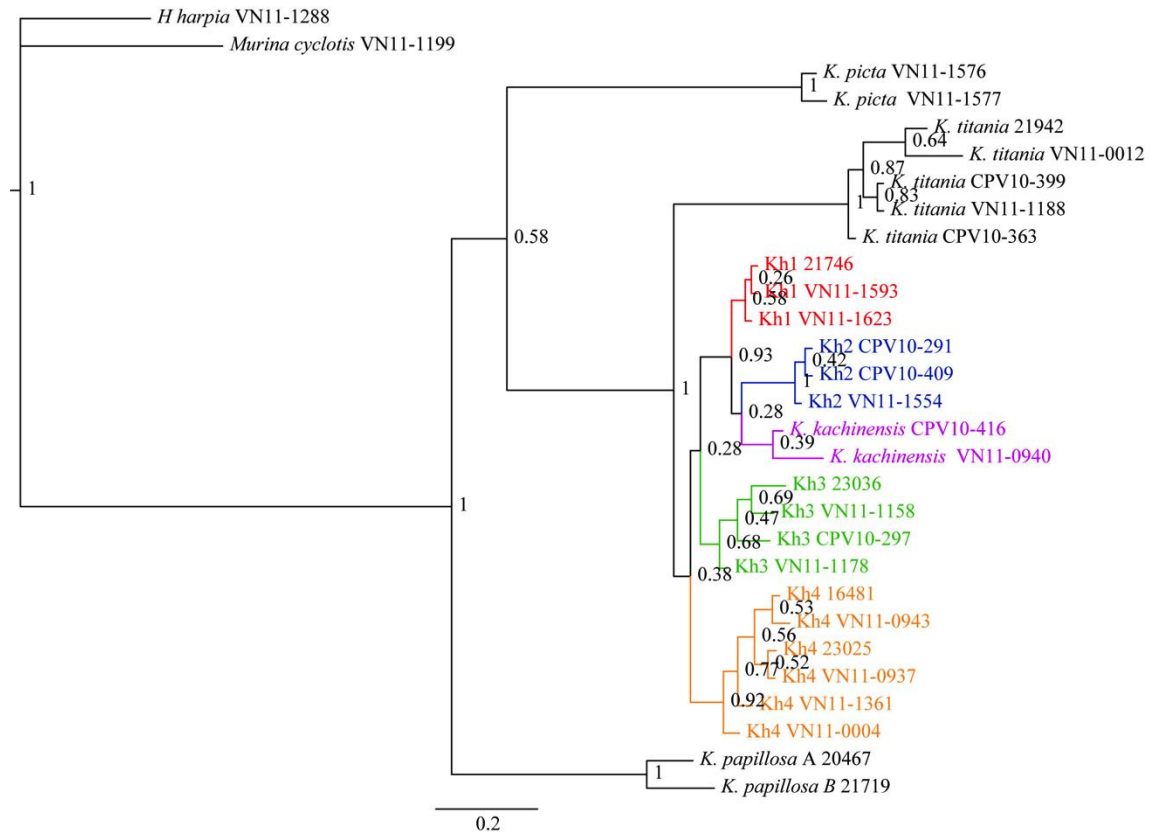


Figure S8-G. Bayesian analyses of the eight independent genes



Bayesian tree reconstructed from analysis of pattitioned alignment (894 nt) of TuFM using HKY+G model

Figure S8-H. Bayesian analyses of the eight independent genes

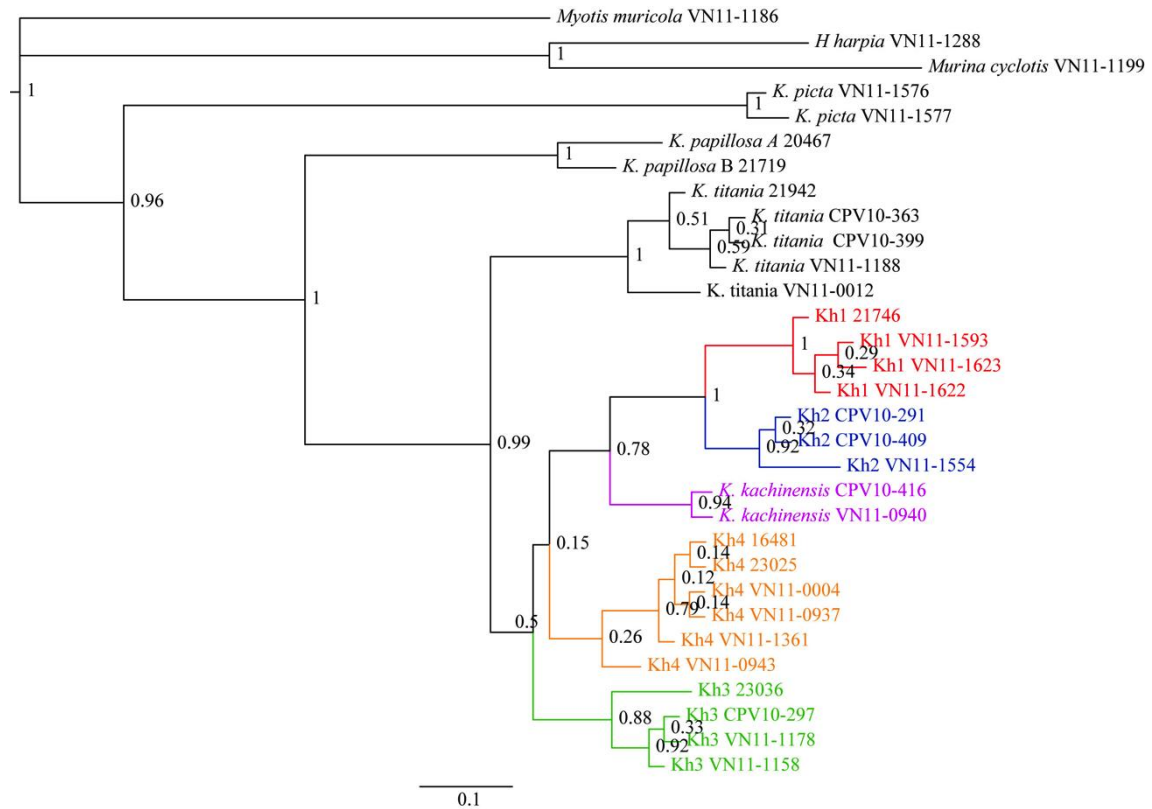


Figure S9. Consensus (A) and Densitree (B) species tree of the genus *Kerivoula* and outgroups obtained from \*BEAST analyses of the seven independent nuclear genes. In A, the node labels are posterior probabilities (PP). In B, bars indicate 95% HPD of the height of clades (only clades with more than 50% support are presented).

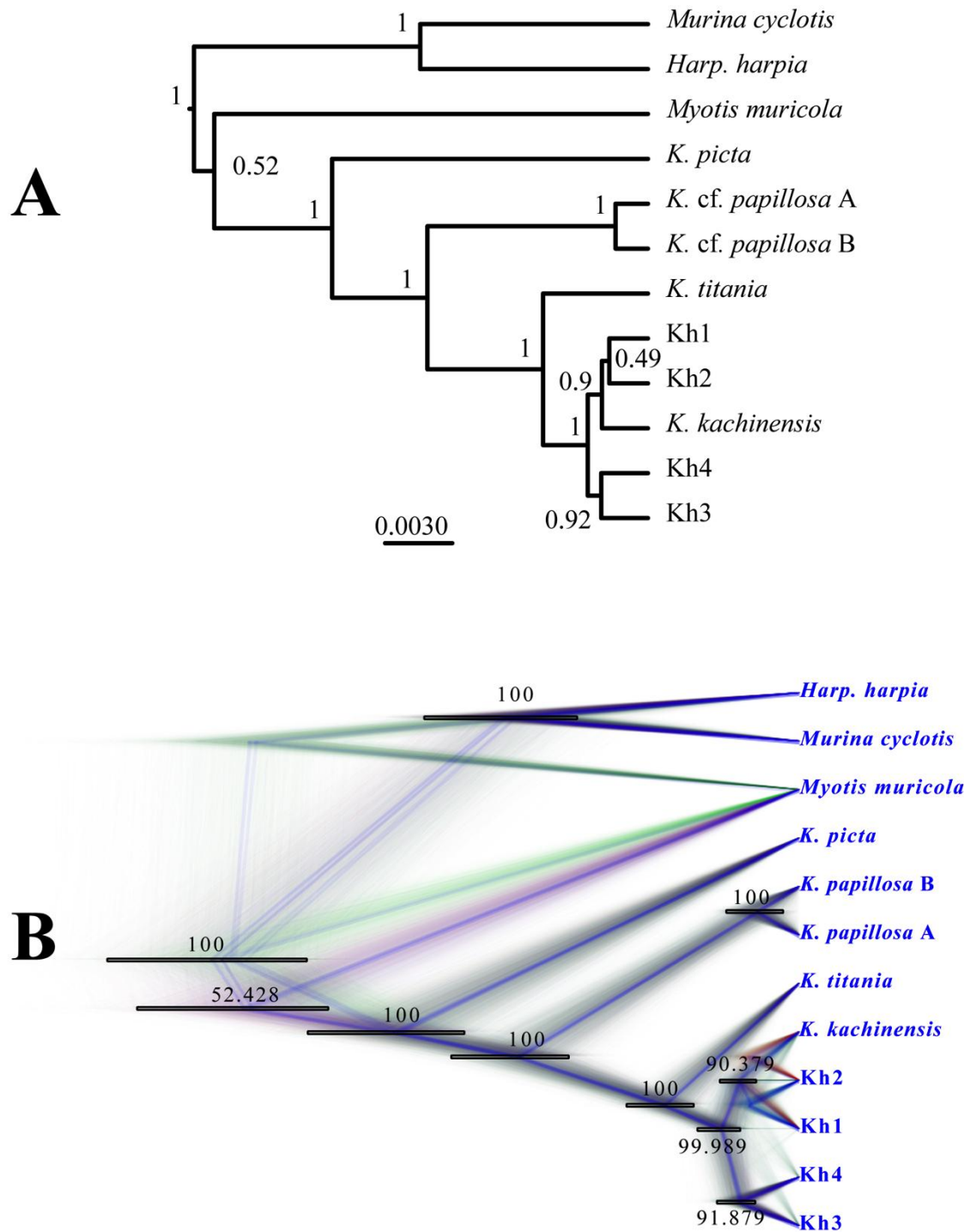


Table S10: Uncorrected pairwise p-distances calculated from the combination of mtDNA genes, *COI* and *Cytb* (1845 bp) and the concatenation of seven nuDNA genes (6214 bp) between 26 examined individuals (see text and Tab. S2 for more detail)

|    |                        | 1             | 2             | 3             | 4             | 5             | 6             | 7             | 8             | 9             | 10            | 11            | 12            |
|----|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 1  | Myotis muricola VN1186 |               |               |               |               |               |               |               |               |               |               |               |               |
| 2  | H harpia VN1288        | 0.076 / 0.190 |               |               |               |               |               |               |               |               |               |               |               |
| 3  | Murina cyclotis VN1199 | 0.067 / 0.184 | 0.042 / 0.176 |               |               |               |               |               |               |               |               |               |               |
| 4  | K H1 21746             | 0.068 / 0.182 | 0.072 / 0.190 | 0.066 / 0.184 |               |               |               |               |               |               |               |               |               |
| 5  | K H1 VN1593            | 0.067 / 0.182 | 0.071 / 0.188 | 0.068 / 0.181 | 0.001 / 0.011 |               |               |               |               |               |               |               |               |
| 6  | K H1 VN1623            | 0.066 / 0.179 | 0.072 / 0.188 | 0.068 / 0.181 | 0.001 / 0.012 | 0.000 / 0.002 |               |               |               |               |               |               |               |
| 7  | K H2 CPV291            | 0.065 / 0.179 | 0.068 / 0.186 | 0.063 / 0.195 | 0.013 / 0.127 | 0.012 / 0.126 | 0.012 / 0.127 |               |               |               |               |               |               |
| 8  | K H2 CPV409            | 0.066 / 0.179 | 0.068 / 0.186 | 0.063 / 0.195 | 0.013 / 0.127 | 0.012 / 0.126 | 0.012 / 0.127 | 0.001 / 0.000 |               |               |               |               |               |
| 9  | K H2 VN1554            | 0.066 / 0.178 | 0.070 / 0.189 | 0.063 / 0.188 | 0.012 / 0.125 | 0.012 / 0.124 | 0.012 / 0.125 | 0.002 / 0.018 | 0.003 / 0.018 |               |               |               |               |
| 10 | K H3 23036             | 0.065 / 0.177 | 0.071 / 0.188 | 0.064 / 0.186 | 0.019 / 0.125 | 0.018 / 0.126 | 0.018 / 0.127 | 0.019 / 0.115 | 0.019 / 0.115 | 0.018 / 0.109 |               |               |               |
| 11 | K H3 CPV297            | 0.065 / 0.176 | 0.068 / 0.183 | 0.064 / 0.186 | 0.017 / 0.118 | 0.016 / 0.119 | 0.016 / 0.120 | 0.017 / 0.117 | 0.017 / 0.117 | 0.016 / 0.111 | 0.006 / 0.054 |               |               |
| 12 | K H3 VN1158            | 0.063 / 0.176 | 0.066 / 0.187 | 0.063 / 0.184 | 0.017 / 0.119 | 0.016 / 0.120 | 0.016 / 0.121 | 0.017 / 0.120 | 0.017 / 0.120 | 0.016 / 0.113 | 0.005 / 0.054 | 0.001 / 0.007 |               |
| 13 | K H3 VN1178            | 0.065 / 0.174 | 0.068 / 0.184 | 0.062 / 0.183 | 0.017 / 0.117 | 0.015 / 0.119 | 0.015 / 0.119 | 0.018 / 0.118 | 0.018 / 0.118 | 0.016 / 0.111 | 0.005 / 0.052 | 0.002 / 0.003 | 0.001 / 0.005 |
| 14 | K H4 16481             | 0.062 / 0.175 | 0.071 / 0.182 | 0.063 / 0.185 | 0.017 / 0.119 | 0.016 / 0.118 | 0.016 / 0.118 | 0.014 / 0.107 | 0.014 / 0.107 | 0.014 / 0.106 | 0.014 / 0.099 | 0.012 / 0.094 | 0.012 / 0.095 |
| 15 | K H4 23025             | 0.064 / 0.176 | 0.066 / 0.183 | 0.059 / 0.185 | 0.014 / 0.119 | 0.013 / 0.117 | 0.013 / 0.117 | 0.011 / 0.107 | 0.011 / 0.107 | 0.011 / 0.110 | 0.012 / 0.097 | 0.011 / 0.096 | 0.011 / 0.098 |
| 16 | K H4 VN0004            | 0.062 / 0.175 | 0.068 / 0.182 | 0.062 / 0.183 | 0.015 / 0.118 | 0.015 / 0.114 | 0.014 / 0.114 | 0.012 / 0.106 | 0.012 / 0.106 | 0.011 / 0.107 | 0.013 / 0.095 | 0.011 / 0.094 | 0.011 / 0.095 |
| 17 | K H4 VN1361            | 0.066 / 0.179 | 0.062 / 0.185 | 0.059 / 0.185 | 0.015 / 0.120 | 0.014 / 0.117 | 0.014 / 0.117 | 0.011 / 0.110 | 0.011 / 0.110 | 0.011 / 0.113 | 0.014 / 0.098 | 0.012 / 0.096 | 0.011 / 0.098 |
| 18 | K kachinensis CPV416   | 0.064 / 0.178 | 0.070 / 0.177 | 0.063 / 0.191 | 0.017 / 0.121 | 0.017 / 0.119 | 0.017 / 0.119 | 0.011 / 0.108 | 0.012 / 0.108 | 0.010 / 0.106 | 0.018 / 0.106 | 0.015 / 0.099 | 0.015 / 0.101 |
| 19 | K papillosa 20467      | 0.064 / 0.177 | 0.073 / 0.179 | 0.065 / 0.176 | 0.037 / 0.147 | 0.038 / 0.147 | 0.038 / 0.146 | 0.036 / 0.141 | 0.035 / 0.141 | 0.035 / 0.138 | 0.034 / 0.151 | 0.034 / 0.144 | 0.032 / 0.144 |
| 20 | K papillosa 21718      | 0.072 / 0.190 | 0.074 / 0.181 | 0.066 / 0.182 | 0.037 / 0.150 | 0.037 / 0.149 | 0.037 / 0.149 | 0.035 / 0.147 | 0.035 / 0.147 | 0.034 / 0.143 | 0.034 / 0.147 | 0.033 / 0.147 | 0.032 / 0.146 |
| 21 | K picta VN1576         | 0.064 / 0.173 | 0.076 / 0.193 | 0.071 / 0.201 | 0.053 / 0.171 | 0.054 / 0.177 | 0.054 / 0.176 | 0.051 / 0.184 | 0.051 / 0.184 | 0.051 / 0.183 | 0.051 / 0.178 | 0.050 / 0.179 | 0.048 / 0.179 |
| 22 | K titania 21942        | 0.065 / 0.173 | 0.071 / 0.175 | 0.063 / 0.178 | 0.019 / 0.124 | 0.020 / 0.125 | 0.019 / 0.126 | 0.016 / 0.125 | 0.016 / 0.125 | 0.016 / 0.124 | 0.019 / 0.130 | 0.018 / 0.129 | 0.017 / 0.130 |
| 23 | K titania CPV363       | 0.065 / 0.173 | 0.071 / 0.175 | 0.065 / 0.183 | 0.020 / 0.121 | 0.020 / 0.124 | 0.020 / 0.125 | 0.017 / 0.127 | 0.017 / 0.127 | 0.017 / 0.125 | 0.019 / 0.133 | 0.019 / 0.133 | 0.018 / 0.133 |
| 24 | K titania CPV399       | 0.064 / 0.172 | 0.070 / 0.176 | 0.065 / 0.184 | 0.020 / 0.122 | 0.020 / 0.125 | 0.020 / 0.126 | 0.017 / 0.128 | 0.017 / 0.128 | 0.017 / 0.126 | 0.019 / 0.133 | 0.018 / 0.134 | 0.018 / 0.134 |
| 25 | K titania VN0012       | 0.065 / 0.174 | 0.071 / 0.172 | 0.065 / 0.178 | 0.020 / 0.120 | 0.021 / 0.122 | 0.021 / 0.122 | 0.018 / 0.124 | 0.018 / 0.124 | 0.017 / 0.122 | 0.020 / 0.129 | 0.019 / 0.126 | 0.017 / 0.127 |
| 26 | K titania VN1188       | 0.067 / 0.179 | 0.070 / 0.179 | 0.065 / 0.184 | 0.020 / 0.121 | 0.020 / 0.125 | 0.020 / 0.125 | 0.017 / 0.128 | 0.017 / 0.128 | 0.017 / 0.125 | 0.019 / 0.131 | 0.019 / 0.130 | 0.018 / 0.130 |

Table S10: Uncorrected pairwise p-distances calculated from the combination of mtDNA genes, COI and Cytb (1845 bp) and the concatenation of seven nuDNA genes (6214 bp) between 26 examined individuals (see text and Tab. S2 for more detail) (continued)

|                         | 13            | 14            | 15            | 16            | 17            | 18            | 19            | 20            | 21            | 22            | 23            | 24            | 25            |
|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 13 K H3 VN1178          |               |               |               |               |               |               |               |               |               |               |               |               |               |
| 14 K H4 16481           | 0.012 / 0.094 |               |               |               |               |               |               |               |               |               |               |               |               |
| 15 K H4 23025           | 0.010 / 0.095 | 0.002 / 0.046 |               |               |               |               |               |               |               |               |               |               |               |
| 16 K H4 VN0004          | 0.011 / 0.093 | 0.002 / 0.038 | 0.001 / 0.011 |               |               |               |               |               |               |               |               |               |               |
| 17 K H4 VN1361          | 0.011 / 0.095 | 0.002 / 0.044 | 0.001 / 0.003 | 0.002 / 0.011 |               |               |               |               |               |               |               |               |               |
| 18 K kachinensis CPV416 | 0.016 / 0.100 | 0.012 / 0.092 | 0.010 / 0.099 | 0.009 / 0.096 | 0.010 / 0.099 |               |               |               |               |               |               |               |               |
| 19 K papillosa 20467    | 0.032 / 0.143 | 0.033 / 0.146 | 0.031 / 0.143 | 0.032 / 0.142 | 0.031 / 0.144 | 0.035 / 0.147 |               |               |               |               |               |               |               |
| 20 K papillosa 21718    | 0.032 / 0.146 | 0.034 / 0.146 | 0.031 / 0.146 | 0.032 / 0.144 | 0.031 / 0.149 | 0.035 / 0.147 | 0.008 / 0.081 |               |               |               |               |               |               |
| 21 K picta VN1576       | 0.048 / 0.178 | 0.051 / 0.173 | 0.049 / 0.175 | 0.050 / 0.173 | 0.048 / 0.173 | 0.051 / 0.177 | 0.050 / 0.187 | 0.049 / 0.180 |               |               |               |               |               |
| 22 K titania 21942      | 0.017 / 0.128 | 0.017 / 0.124 | 0.015 / 0.120 | 0.016 / 0.119 | 0.015 / 0.121 | 0.018 / 0.120 | 0.032 / 0.141 | 0.032 / 0.139 | 0.051 / 0.174 |               |               |               |               |
| 23 K titania CPV363     | 0.017 / 0.131 | 0.018 / 0.127 | 0.015 / 0.123 | 0.017 / 0.122 | 0.016 / 0.124 | 0.019 / 0.128 | 0.034 / 0.140 | 0.033 / 0.139 | 0.052 / 0.173 | 0.000 / 0.018 |               |               |               |
| 24 K titania CPV399     | 0.017 / 0.132 | 0.018 / 0.128 | 0.015 / 0.124 | 0.016 / 0.123 | 0.016 / 0.125 | 0.019 / 0.130 | 0.034 / 0.142 | 0.033 / 0.140 | 0.052 / 0.172 | 0.000 / 0.020 | 0.000 / 0.001 |               |               |
| 25 K titania VN0012     | 0.018 / 0.126 | 0.019 / 0.121 | 0.016 / 0.119 | 0.017 / 0.118 | 0.017 / 0.120 | 0.019 / 0.121 | 0.033 / 0.140 | 0.033 / 0.140 | 0.052 / 0.173 | 0.001 / 0.004 | 0.003 / 0.015 | 0.002 / 0.016 |               |
| 26 K titania VN1188     | 0.017 / 0.129 | 0.018 / 0.126 | 0.015 / 0.124 | 0.016 / 0.122 | 0.016 / 0.124 | 0.019 / 0.127 | 0.034 / 0.139 | 0.033 / 0.137 | 0.052 / 0.174 | 0.001 / 0.019 | 0.000 / 0.004 | 0.000 / 0.005 | 0.003 / 0.016 |

Figure S11. Chronogram reconstructed from the cytochrome b dataset

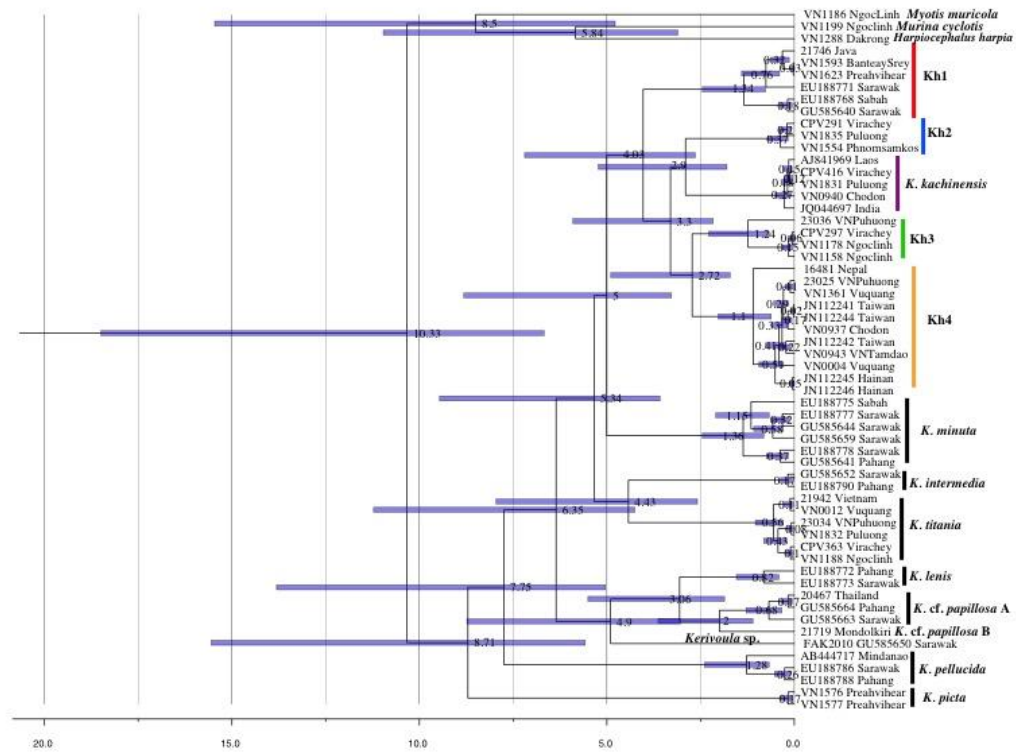




Table S12. External and craniodental measurements (in mm) of studied *Kerivoula* spp. Values are given as mean,  $\pm$  SD ( $n \geq 2$ ), (n), min-max. Acronyms and definitions for measurements are given in the Material and Method.

| Taxon                 |          | FA                                 | GLS                                  | CCL                                  | CC                                | P <sup>2</sup> P <sup>2</sup>     | P <sup>3</sup> P <sup>3</sup>     | P <sup>4</sup> P <sup>4</sup>     | M <sup>3</sup> M <sup>3</sup>     |
|-----------------------|----------|------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| <i>K. cf. engana</i>  |          | 33.50 $\pm$ 1.01 (3)<br>32.6-34.6  | 14.13 $\pm$ 0.16 (3)<br>13.96-14.28  | 12.77 $\pm$ 0.04 (3)<br>12.74-12.82  | 3.35 $\pm$ 0.16 (2)<br>3.23-3.46  | 3.40 $\pm$ 0.18 (2)<br>3.27-3.52  | 3.43 $\pm$ 0.05 (2)<br>3.39-3.46  | 4.35 $\pm$ 0.09 (3)<br>4.29-4.45  | 5.31 $\pm$ 0.18 (3)<br>5.11-5.45  |
| Kh1                   |          | 32.64 $\pm$ 0.93 (20)<br>31.2-34.3 | 13.64 $\pm$ 0.32 (25)<br>12.96-14.12 | 12.58 $\pm$ 0.27 (25)<br>11.95-13.14 | 3.32 $\pm$ 0.15 (25)<br>2.92-3.48 | 3.38 $\pm$ 0.14 (24)<br>3-3.56    | 3.42 $\pm$ 0.14 (24)<br>3.16-3.62 | 4.11 $\pm$ 0.87 (25)<br>0-4.5     | 5.16 $\pm$ 0.16 (25)<br>4.94-5.43 |
| Kh2                   |          | 32.08 $\pm$ 0.15 (4)<br>32-32.3    | 13.65 $\pm$ 0.27 (5)<br>13.34-13.98  | 12.51 $\pm$ 0.23 (5)<br>12.17-12.75  | 3.29 $\pm$ 0.15 (5)<br>3.05-3.45  | 3.36 $\pm$ 0.17 (5)<br>3.08-3.51  | 3.40 $\pm$ 0.17 (5)<br>3.13-3.56  | 4.24 $\pm$ 0.18 (5)<br>4-4.43     | 5.09 $\pm$ 0.16 (5)<br>4.84-5.24  |
| Kh3                   |          | 32.00 $\pm$ 1.73 (3)<br>30-33      | 13.51 $\pm$ 0.38 (7)<br>12.7-13.79   | 12.43 $\pm$ 0.36 (7)<br>11.68-12.76  | 3.23 $\pm$ 0.11 (7)<br>3.05-3.35  | 3.30 $\pm$ 0.12 (7)<br>3.11-3.43  | 3.33 $\pm$ 0.12 (7)<br>3.14-3.46  | 4.10 $\pm$ 0.12 (7)<br>3.89-4.2   | 4.99 $\pm$ 0.17 (7)<br>4.7-5.15   |
| Kh4                   |          | 31.25 $\pm$ 1.06 (2)<br>30.5-32    | 13.58 $\pm$ 0.26 (12)<br>13.17-13.92 | 12.66 $\pm$ 0.25 (12)<br>12.25-12.98 | 3.44 $\pm$ 0.10 (12)<br>3.23-3.58 | 3.50 $\pm$ 0.07 (12)<br>3.41-3.61 | 3.55 $\pm$ 0.10 (12)<br>3.38-3.68 | 4.40 $\pm$ 0.11 (12)<br>4.21-4.57 | 5.29 $\pm$ 0.15 (12)<br>5.04-5.55 |
| <i>K. depressa</i>    | Holotype | 32.6                               | 13.50                                | 12.47                                | 3.14                              | 3.27                              | 3.40                              | 4.25                              | 4.91                              |
|                       | Paratype |                                    | 13.67                                | 12.28                                | 3.22                              | 3.24                              | 3.31                              | 4.04                              | 4.83                              |
| <i>K. kachinensis</i> |          | 41.85 $\pm$ 1.09 (13)<br>40.4-43.4 | 16.79 $\pm$ 0.44 (17)<br>16.07-17.54 | 15.91 $\pm$ 0.51 (17)<br>15.14-16.67 | 4.36 $\pm$ 0.14 (17)<br>4.12-4.64 | 4.39 $\pm$ 0.15 (16)<br>4.1-4.67  | 4.37 $\pm$ 0.15 (16)<br>4.1-4.67  | 5.01 $\pm$ 1.30 (17)<br>0-5.6     | 6.39 $\pm$ 0.15 (17)<br>6.07-6.73 |
| <i>K. titania</i>     |          | 34.48 $\pm$ 0.79 (5)<br>33.7-35.7  | 14.89 $\pm$ 0.27 (19)<br>14.49-15.44 | 13.79 $\pm$ 0.34 (19)<br>13.25-14.75 | 3.54 $\pm$ 0.10 (19)<br>3.35-3.71 | 3.70 $\pm$ 0.13 (17)<br>3.45-3.93 | 3.76 $\pm$ 0.13 (17)<br>3.5-3.99  | 4.10 $\pm$ 1.45 (19)<br>0-4.81    | 5.57 $\pm$ 0.20 (19)<br>5.06-5.84 |

| Taxon                 |          | ZB              | MB             | BC             | BH             | CM <sup>3</sup> | CP <sup>4</sup> | ML              | CM <sub>3</sub> | CP <sub>4</sub> | PCH             |
|-----------------------|----------|-----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <i>K. cf. engana</i>  |          | 8.77±0.04 (2)   | 7.23±0.19 (3)  | 7.27±0.09 (3)  | 5.71±0.24 (3)  | 5.60±0.07 (3)   | 2.80±0.01 (2)   | 9.86±0.09 (3)   | 5.92±0.06 (3)   | 2.62±0.08 (2)   | 2.94±0.05 (3)   |
|                       |          | 8.74-8.80       | 7.04-7.41      | 7.19-7.36      | 5.43-5.86      | 5.55-5.68       | 2.79-2.8        | 9.77-9.94       | 5.86-5.97       | 2.56-2.68       | 2.91-3.00       |
| Kh1                   |          | 8.38±0.20 (22)  | 7.22±0.15 (25) | 7.06±0.14 (25) | 5.39±0.16 (25) | 5.51±0.14 (25)  | 2.73±0.10 (25)  | 9.65±0.25 (24)  | 5.82±0.16 (24)  | 2.55±0.10 (24)  | 2.88±0.21 (24)  |
|                       |          | 8.08-8.79       | 6.88-7.52      | 6.74-7.3       | 5-5.65         | 5.17-5.8        | 2.42-2.94       | 9.13-10.18      | 5.48-6.18       | 2.36-2.75       | 2.49-3.16       |
| Kh2                   |          | 8.22±0.21 (5)   | 7.31±0.18 (5)  | 7.12±0.05 (5)  | 4.97±0.16 (5)  | 5.37±0.13 (5)   | 2.78±0.10 (5)   | 9.52±0.21 (5)   | 5.71±0.15 (5)   | 2.52±0.04 (5)   | 2.97±0.17 (5)   |
|                       |          | 7.89-8.45       | 6.99-7.45      | 7.06-7.19      | 4.86-5.25      | 5.17-5.49       | 2.67-2.89       | 9.17-9.75       | 5.48-5.86       | 2.47-2.57       | 2.71-3.17       |
| Kh3                   |          | 8.18±0.24 (7)   | 7.29±0.23 (7)  | 7.14±0.20 (7)  | 4.81±0.20 (7)  | 5.25±0.13 (7)   | 2.63±0.08 (7)   | 9.42±0.26 (7)   | 5.46±0.15 (7)   | 2.39±0.08 (7)   | 2.87±0.09 (7)   |
|                       |          | 7.72-8.49       | 6.94-7.56      | 6.73-7.31      | 4.57-5.13      | 5.06-5.45       | 2.52-2.77       | 9.0-9.78        | 5.29-5.76       | 2.29-2.55       | 2.73-2.99       |
| Kh4                   |          | 8.58±0.28 (11)  | 7.48±0.18 (12) | 7.16±0.16 (12) | 5.00±0.23 (12) | 5.47±0.13 (12)  | 2.80±0.09 (12)  | 9.76±0.22 (12)  | 5.81±0.14 (12)  | 2.58±0.09 (12)  | 23.02±0.12 (12) |
|                       |          | 8.08-9.01       | 7.14-7.75      | 6.95-7.42      | 4.71-5.43      | 5.28-5.67       | 2.64-2.97       | 9.29-9.99       | 5.63-6.08       | 2.47-2.79       | 2.83-2.96       |
| <i>K. depressa</i>    | Holotype | 8.08            | 7.23           | 7.05           | 4.86           | 5.38            | 2.72            | 9.50            | 5.80            | 2.52            | 2.96            |
|                       | Paratype |                 | 7.13           | 7.31           | 4.86           | 5.23            | 2.64            | 9.45            | 5.5             | 2.4             | 2.83            |
| <i>K. kachinensis</i> |          | 10.48±0.35 (17) | 8.76±0.27 (17) | 8.31±0.12 (17) | 5.56±0.26 (17) | 6.95±0.19 (17)  | 3.51±0.12 (17)  | 12.29±0.38 (17) | 7.37±0.19 (17)  | 3.40±0.12 (17)  | 3.79±0.23 (17)  |
|                       |          | 9.75-10.97      | 8.31-9.24      | 8.15-8.52      | 5.12-5.93      | 6.69-7.27       | 3.28-3.72       | 11.53-12.84     | 7.1-7.67        | 3.2-3.6         | 3.45-4.19       |
| <i>K. titania</i>     |          | 8.82±0.56 (18)  | 7.97±0.22 (19) | 7.76±0.15 (19) | 5.43±0.16 (19) | 6.15±0.17 (19)  | 3.12±0.09 (19)  | 10.57±0.25 (19) | 6.49±0.21 (19)  | 2.94±0.09 (18)  | 3.00±0.09 (19)  |
|                       |          | 7.7-9.59        | 7.66-8.52      | 7.49-7.98      | 5.16-5.84      | 5.93-6.57       | 2.97-3.31       | 10.18-11.04     | 6.19-6.94       | 2.8-3.17        | 2.87-3.11       |

Table S13. Character factor loadings for PCs, obtained from PCAs on log-transformed raw and standardized craniodental measurements of studied *Kerivoula hardwickii* s.l. Acronyms and definitions for measurements are given in the Material and Method. Bold number indicate the characters load significantly to the relevant PC.

| Characters                    | Raw data |       |        | Standardized data |        |        |
|-------------------------------|----------|-------|--------|-------------------|--------|--------|
|                               | PC 1     | PC 2  | PC 3   | PC*1              | PC* 2  | PC* 3  |
| GLS                           | 0.21     | 0.00  | 0.17   | 0.00              | 0.20   | 0.18   |
| CCL                           | 0.22     | 0.07  | 0.21   | 0.07              | 0.17   | 0.00   |
| M <sup>3</sup> M <sup>3</sup> | 0.33     | 0.04  | 0.41   | 0.02              | 0.08   | -0.39  |
| MB                            | 0.16     | 0.26  | 0.19   | 0.27              | 0.23   | 0.22   |
| BC                            | 0.10     | 0.07  | 0.14   | 0.10              | 0.35   | 0.50   |
| BH                            | 0.47     | -0.74 | -0.39  | -0.79             | -0.37  | 0.33   |
| CM <sup>3</sup>               | 0.29     | -0.08 | 0.28   | -0.10             | 0.08   | -0.39  |
| ML                            | 0.27     | 0.06  | 0.27   | 0.02              | 0.10   | -0.09  |
| CM <sub>3</sub>               | 0.34     | -0.08 | 0.20   | -0.10             | -0.06  | -0.48  |
| PCH                           | 0.51     | 0.60  | -0.60  | 0.52              | -0.77  | 0.13   |
| Eigenvalue                    | 0.001    | 0.001 | 0.0002 | 0.0007            | 0.0004 | 0.0002 |
| % variance                    | 53.1     | 25.0  | 9.1    | 46.9              | 26.4   | 11.2   |