**Supplementary Table S1**. Studied samples of *Indotestudo* and mtDNA sequences obtained from GenBank. Sequences with accession numbers OZ077578-OZ077603 and OZ077681-OZ077730; were generated for the present study.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Accession numbers** |  |  |  |
| **Sample** | **Voucher** | **Species** | **COI** | **cyt *b*** | **ND4+tRNAs** | **Country** | **Site (map)** | **Coordinates (WGS84)** |
| MTD T 1316 | MTD D 46042 | *I. elongata* | OZ077578 | OZ077681 | OZ077705 | ― | **―** | ― |
| MTD T 7262 | MTD D 48075 | *I. elongata* | OZ077579 | OZ077682 | OZ077706 | ― | **―** | ― |
| ― | ― | *I. elongata* | DQ656607 | DQ656607 | DQ656607 | ― | ― | ― |
| ― | ― | *I. elongata* | ― | FJ026851 | ― | ― | ― | ― |
| ― | ― | *I. elongata* | AY434643 | ― | ― | ― | ― | ― |
| ― | ― | *I. elongata* | NC007695 | NC007695 | NC007695 | ― | ― | ― |
| ― | AMCC157712 | *I. elongata* | DQ497310 | ― | ― | ― | ― | ― |
| ― | MVZ 234627 | *I. elongata* | DQ080043 | DQ080043 | DQ080043 | ― | ― | ― |
| MTD T 16275 | ― | *I. elongata* | OZ077580 | OZ077683 | OZ077707 | Bangladesh | **8** | 21.826190°N, 92.392961°E |
| MTD T 16276 | ― | *I. elongata* | OZ077581 | OZ077684 | OZ077708 | Bangladesh | **8** | 21.826190°N, 92.392961°E |
| ― | ― | *I. elongata* | ― | JN232530 | ― | India | **2** | ― |
| ― | ― | *I. elongata* | KP268858 | ― | ― | India | **6** | ― |
| ― | ― | *I. elongata* | KP268857 | ― | ― | India | **4** | ― |
| ― | ― | *I. elongata* | JN794082 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *I. elongata* | JN794083 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *I. elongata* | JX049141 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *I. elongata* | KC354719 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *I. elongata* | KC354720 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *I. elongata* | KC354721 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *I. elongata* | KF894765 | ― | ― | India | **3** | 24.02°N, 92.6667°E |
| ― | ― | *I. elongata* | ― | FJ026846 | ― | India | ― | ― |
| ― | ― | *I. elongata* | ― | FJ026843 | ― | India | ― | ― |
| ― | ― | *I. elongata* | ― | FJ026842 | ― | India | ― | ― |
| ― | ― | *I. elongata* | ― | FJ026835 | ― | India | ― | ― |
| ― | ― | *I. elongata* | ― | FJ026847 | ― | India | ― | ― |
| ― | ― | *I. elongata* | ― | FJ026848 | ― | India | ― | ― |
| ZSI T 1121 105 | ― | *I. elongata* | ― | OZ077685 | OZ077709 | India (Odisha) | **1** | 19.879410°N, 84.978988°E |
| MTD T 12217\* | USNM 68132 | *I. elongata* | OZ077586 | OZ077689 | OZ077714 | Lao PDR  | **13** | 19.886829°N, 102.145919°E |
| MTD T 12749 | ― | *I. elongata* | OZ077587 | OZ077690 | OZ077715 | Malaysia | **24** | ― |
| MTD T 18127 | ― | *I. elongata* | OZ077588 | OZ077691 | OZ077716 | Malaysia | **24** | ― |
| MTD T 12213\* | NHM(UK) 1908.12.28.14 | *I. elongata* | OZ077589 | OZ077692 | OZ077717 | Myanmar | **11** | ― |
| MTD T 12214\* | NHM(UK) 1889.3.25.7 | *I. elongata* | OZ077586 | OZ077689 | OZ077714 | Myanmar | **11** | ― |
| MTD T 12221\* | USNM 28102 | *I. elongata* | OZ077587 | OZ077690 | OZ077715 | Myanmar | **22** | 11.266667°N, 98.766667°E |
| MTD T 12222\* | USNM 520645 | *I. elongata* | OZ077588 | OZ077691 | OZ077716 | Myanmar | **9** | 23.58665°N, 95.513916°E |
| MTD T 12223\* | USNM 123445 | *I. elongata* | OZ077589 | OZ077692 | OZ077717 | Myanmar | **10** | 25.383°N, 97.40°E |
| MTD T 12209 | ― | *I. elongata* | OZ077590 | ― | ― | Thailand | **16** | ― |
| MTD T 12216\* | USNM 101041 | *I. elongata* | OZ077591 | OZ077693 | OZ077718 | Thailand | **12** | 19.864894°N, 99.792709°E |
| MTD T 12218\* | USNM 93224 | *I. elongata* | OZ077592 | OZ077694 | OZ077719 | Thailand | **21** | 12.2458°N, 99.9583°E |
| MTD T 12220\* | USNM 89448 | *I. elongata* | OZ077593 | OZ077695 | OZ077720 | Thailand | **23** | 10.60122°N, 99.134216°E |
| MTD T 12224\* | USNM 101001 | *I. elongata* | OZ077594 | ― | OZ077721 | Thailand | **15** | 14.7125°N, 101.4222°E |
| MTD T 17822 | ZMMU NAP 03708 | *I. elongata* | OZ077595 | OZ077696 | OZ077722 | Vietnam | **19** | 11.593609°N, 105.878153°E |
| MTD T 17823 | ZMMU NAP 03709 | *I. elongata* | OZ077596 | OZ077697 | OZ077723 | Vietnam | **19** | 11.593609°N, 105.878153°E |
| MTD T 17824 | ZMMU NAP 02114 | *I. elongata* | OZ077597 | OZ077698 | OZ077724 | Vietnam | **20** | 11.456334°N, 107.378492°E |
| MTD T 17825 | ZMMU NAP 02124 | *I. elongata* | OZ077598 | OZ077699 | OZ077725 | Vietnam | **20** | 11.456334°N, 107.378492°E |
| MTD T 17826 | ZMMU NAP 02130 | *I. elongata* | OZ077599 | OZ077700 | OZ077726 | Vietnam | **20** | 11.456334°N, 107.378492°E |
| MTD T 17827 | ZMMU NAP 02232 | *I. elongata* | OZ077600 | OZ077701 | OZ077727 | Vietnam | **20** | 11.456334°N, 107.378492°E |
| ― | ― | *I. elongata* | ― | JN710008 | ― | Vietnam | **17** | ― |
| MTD T 12211\* | ZFMK 81538 | *I. elongata* | OZ077601 | OZ077702 | OZ077728 | Vietnam | **14** | 17.971612°N, 106.138849°E |
| MTD T 12212\* | ROM 34541 | *I. elongata* | OZ077602 | OZ077703 | OZ077729 | Vietnam | **18** | 12.867222°N, 107.7075°E |
| ― | ― | *“I. forstenii”* | KC354731 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *“I. forstenii”* | KC354732 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *“I. forstenii”* | KF894793 | ― | ― | India | **5** | 23.43°N, 92.43°E |
| ― | ― | *“I. forstenii”* | JX049140 | ― | ― | India | **7** | 23.36°N, 93.00°E |
| ― | ― | *I. forstenii* | AY434561 | ― | ― | ― | ― | ― |
| ― | MVZ 234628 | *I. forstenii* | DQ080044 | DQ080044 | DQ080044 | ― | ― | ― |
| MTD T 238 | ― | *I. forstenii* | ― | AJ888372 | ― | Indonesia | ― | 1.471095°N, 124.851299°E |
| MTD T 299 | ― | *I. forstenii* | OZ077603 | OZ077704 | OZ077730 | Indonesia | **―** | ― |
| ― | ― | *I. travancorica* | AY434644 | ― | ― | ― | ― | ― |
| ― | AMCC142999 | *I. travancorica* | HQ329761 | DQ497311 | ― | ― | ― | ― |
| **Explanations:** AMCC = The Ambrose Monell Cryo-Collection of the American Museum of Natural History, New York; MTD D = Herpetology collection of the Museum of Zoology, Senckenberg Dresden; MTD T = Tissue collection of the Museum of Zoology, Senckenberg Dresden; MVZ = Museum of Vertebrate Zoology, Berkely; NHM(UK) = Natural History Museum, London; ROM = Royal Ontario Museum, Toronto; USNM = National Museum of Natural History, Smithsonian Institution, Washington, D.C.; ZFMK = Zoologisches Forschungsmuseum Alexander Koenig, Bonn; ZMMU NAP = Tissue collection of the Zoological Museum of Moscow University; ZSI T = Zoological Survey of India, tissue; \* = hDNA. |

**Supplementary Table S2**.Primers used for fresh samples.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Primer** | **Product** | **Direction** | **Sequence** | **Annealing temp. C°** | **Reference** |
| L-ND4 | ND4, tRNAs, His, Ser, Leu | F | 5' –GTAGAAGCCCCAATCGCAG-3' | 59 | Stuart & Parham (2004) |
| H-Leu | ND4, tRNAs, His, Ser, Leu | R | 5' –ATTACTTTTACTTGGATTTGCACCA-3' | 57 | Stuart & Parham (2004) |
| cyt*b*G | cyt *b* | F | 5' –AACCATCGTTGT(AT)ATCAACTAC-3' | 55 | Spinks et al. (2004) |
| mt-f-na | cyt *b* | R | 5' –AGGGTGGAGTCTTCAGTTTTTGGTTTACAAGACCAATG-3' | 70 | Fritz et al. (2006) |
| L-turtCOI | COI | F | 5’-ACTCAGCCATCTTACCTGTGATT-3’ | 51 | Stuart & Parham (2004) |
| turt\_COI.rev | COI | R | 5’-GTTATGTGGTTGGCTTGAAA-3’ | 51 | This study |

**Supplementary Table** **S3**.Primers used for amplifying and sequencing short mtDNA fragments of historic samples of *Indotestudo elongata*.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Direction** | **Product** | **Primer sequence** | **Fragment length (bp)** |
| IneCOI\_50.forIneCOI\_270.rev | FR | COI\_Frag1 | GGGCCTGAGCAGGAATAGTATGTCTGGTGCTCCGATTATT | 220 |
| IneCOI\_220.forIneCOI\_450.rev | FR | COI\_Frag2 | GGCTTCGGAAACTGACTTGTAGTTAGGTCTACAGAGGCACCA | 230 |
| IneCOI\_410.forIneCOI\_650.rev | FR | COI\_Frag3 | GCTGGTGCCTCTGTAGACCTGCTGGTGCCTCTGTAGACCT | 240 |
| IneCOI\_600.forIneCOI\_770.rev | FR | COI\_Frag4 | CCAGTACTTGCCGCTGGTATTGAGATTATGCCAAATCCAGGT | 170 |
| IneCOI\_1100.forIneCOI\_1330.rev | FR | COI\_Frag5 | GCACACTTCCACTATGTCCTCTCGTCGTGGTATTCCGGCTAGA | 230 |
| IneCyt*b*\_110.forIneCyt*b*\_380.rev | FR | Cyt*b*\_Frag1 | TGGGCATCTGCCTAATCCTATTCCTGTGTTTCAAGTTTCTTTG | 270 |
| IneCyt*b*\_340.forIneCyt*b*\_560.rev | FR | Cyt*b*\_Frag2 | CAAAGAAACTTGAAACACAGGAAAGGGTGGCGTTGTCTACTGA | 220 |
| IneND4\_110.forIneND4\_310.rev | FR | ND4\_Frag1 | GCCCACTATCAAAAACATTATCAATGAGTGTAACCGCACCAGT | 200 |
| IneND4\_330.forIneND4\_490.rev | FR | ND4\_Frag2 | TCGTCTATACTCTTCTGCCTAGCAGTTGGTGGTAGGGCTATGTT | 160 |
| IneND4\_440.forIneND4\_620.rev | FR | ND4\_Frag3 | GCCAGCCTAACTAACATAGCCTGATGGGGTTTCTCCTCATT | 180 |
| IneND4\_580.forIneND4\_780.rev | FR | ND4\_Frag4 | CAATGAGGAGAAACCCCATCCTCCTGTCTTTAGAGCCACAGTC | 200 |

**Supplementary Table S4**. Best partition scheme and the best-fitting evolutionary models for MrBayes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Gene** | **Position** | **Codon position** | **Evolutionary model** | **Partition** |
| COI | 1-1491 | 1 | TRN+G | 1 |
| 2 | K80+I | 2 |
| 3 | HKY+I | 3 |
| cyt *b* | 1492-2595 | 1 | HKY+I | 4 |
| 2 | HKY+I | 3 |
| 3 | TRN+G | 1 |
| ND4 | 2596-3313 | 1 | HKY+I | 4 |
| 2 | HKY+I | 3 |
| 3 | TRN+G | 1 |

**Supplementary Table S5**.Examined morphological characters and abbreviations.

Metric characters:

Straight carapace length (**SCL**): Straight-line distance from anterior to posterior carapace edge.

Straight carapace width (**SCW**): Straight-line distance at the level of the seam separating vertebral scutes 3 and 4.

Curved carapace length (**CCL**): Curved distance from anterior to posterior carapace edge.

Curved carapace width (**CCW**): Curved distance at the level of the seam separating vertebral scutes 3 and 4.

Nuchal length (**NL**): Length of nuchal scute.

Nuchal width (**NW**): Width of posterior side of nuchal scute.

Vertebral scute length (**V1L,** **V2L, V3L V4L, V5L**): Length of vertebral scute.

First vertebral width (**V1W1**): Maximum width of first vertebral scute measured at anterior edge.

First vertebral width (**V1W2**): Maximum width of first vertebral scute measured at posterior edge.

Vertebral width (**V2W, V3W, V4W, V5W**): Maximum width of vertebral scute measured across middle of scute.

Caudal length (**CauL**): length of caudal scute.

Caudal width 1(**CauW1**): width of anterior side of caudal scute.

Caudal width 2(**CauW2**): width of posterior side of caudal scute.

Costal length (**C1L1**): Length of left costal scute measured at anterior seam.

Costal length (**C1L2**): Length of left costal scute measured at posterior seam.

Costal length (**C2L, C3L, C4L**): Length of left costal scute.

Costal width (**C1W,** **C2W, C3W, C4W**): Width of left costal scute.

Shell height (**HT**): Height of shell measured at the level of the seam separating vertebral scutes 3 and 4.

Straight plastron length (**SPL**): Straight-line distance from anterior to posterior plastron edge measured along mid-seam.

Straight plastron width (**SPW**): Straight-line distance measured at the level of the seam separating lower marginal scutes 6 and 7.

Curved plastron length (**CPL**): Curved distance from anterior to posterior plastron edge measured along mid-seam.

Curved plastron width (**CPW**): Curved distance measured at the level of the seam separating lower marginal scutes 6 and 7.

Medial seam length of plastral scutes (**GulL,** **HumL, PecL, AbdL, FemL, AnL**)

Length of anal fork (**AfL1**): Distance anterior suture of left anal scute to the tip of the anal scute.

Width of anal fork (**AfL2**): Distance posterior suture of left anal scute to the tip of the anal scute.

Colouration-related characters:

Pigmentation of plastron in % (**Ppigm**)

Pigmentation of third vertebral scute in % (**Cpigm**)

Table S6.Contribution of examined morphological variables to the first four PCs.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Females** |  | **Males** |
| **Carapace** | **PC1** | **PC2** | **PC3** | **PC4** |  | **PC1** | **PC2** | **PC3** | **PC4** |
| SCW | 0.103 | 0.116 | 0.005 | 0.044 |  | 0.170 | 0.037 | 0.004 | 0.000 |
| CCL | 0.202 | 0.127 | 0.011 | 0.072 |  | 0.170 | 0.000 | 0.015 | 0.039 |
| CCW | 0.280 | 0.120 | 0.008 | 0.001 |  | 0.499 | 0.039 | 0.061 | 0.007 |
| NL | 0.082 | 0.003 | 0.059 | 0.191 |  | 0.020 | 0.019 | 0.115 | 0.023 |
| NW | 0.128 | 0.037 | 0.046 | 0.071 |  | 0.041 | 0.023 | 0.020 | 0.310 |
| HT | 0.059 | 0.058 | 0.006 | 0.085 |  | 0.113 | 0.034 | 0.028 | 0.005 |
| V1L | 0.042 | 0.003 | 0.253 | 0.075 |  | 0.181 | 0.062 | 0.044 | 0.046 |
| V1W1 | 0.069 | 0.043 | 0.003 | 0.146 |  | 0.215 | 0.075 | 0.001 | 0.117 |
| V1W2 | 0.066 | 0.081 | 0.148 | 0.011 |  | 0.245 | 0.036 | 0.246 | 0.184 |
| V2L | 0.226 | 0.181 | 0.168 | 0.011 |  | 0.284 | 0.002 | 0.023 | 0.098 |
| V2W | 0.301 | 0.359 | 0.090 | 0.032 |  | 0.316 | 0.003 | 0.201 | 0.051 |
| V3L | 0.371 | 0.232 | 0.065 | 0.002 |  | 0.286 | 0.001 | 0.245 | 0.043 |
| V3W | 0.290 | 0.408 | 0.021 | 0.004 |  | 0.536 | 0.030 | 0.201 | 0.026 |
| V4L | 0.279 | 0.123 | 0.195 | 0.003 |  | 0.163 | 0.123 | 0.019 | 0.022 |
| V4W | 0.271 | 0.183 | 0.191 | 0.000 |  | 0.474 | 0.195 | 0.130 | 0.019 |
| V5L | 0.143 | 0.012 | 0.193 | 0.013 |  | 0.198 | 0.240 | 0.044 | 0.001 |
| V5W | 0.359 | 0.009 | 0.415 | 0.026 |  | 0.443 | 0.190 | 0.062 | 0.006 |
| CauL | 0.152 | 0.015 | 0.068 | 0.067 |  | 0.051 | 0.056 | 0.007 | 0.022 |
| CauW1 | 0.137 | 0.059 | 0.054 | 0.048 |  | 0.112 | 0.057 | 0.024 | 0.239 |
| CauW2 | 0.307 | 0.050 | 0.006 | 0.014 |  | 0.021 | 0.054 | 0.002 | 0.425 |
| C1L1 | 0.335 | 0.042 | 0.133 | 0.114 |  | 0.003 | 0.592 | 0.008 | 0.041 |
| C1L2 | 0.263 | 0.085 | 0.219 | 0.080 |  | 0.022 | 0.610 | 0.004 | 0.010 |
| C1W | 0.206 | 0.237 | 0.024 | 0.121 |  | 0.178 | 0.190 | 0.000 | 0.096 |
| C2L | 0.184 | 0.030 | 0.045 | 0.230 |  | 0.053 | 0.274 | 0.091 | 0.011 |
| C2W | 0.086 | 0.352 | 0.066 | 0.003 |  | 0.552 | 0.006 | 0.041 | 0.012 |
| C3L | 0.202 | 0.019 | 0.010 | 0.287 |  | 0.253 | 0.188 | 0.002 | 0.028 |
| C3W | 0.152 | 0.378 | 0.014 | 0.000 |  | 0.423 | 0.016 | 0.385 | 0.004 |
| C4L | 0.031 | 0.014 | 0.364 | 0.184 |  | 0.395 | 0.037 | 0.016 | 0.003 |
| C4W | 0.137 | 0.361 | 0.24 | 0.007 |  | 0.227 | 0.016 | 0.564 | 0.002 |
| **Plastron** |  |  |  |  |  |  |  |  |  |
| CPL | 0.029 | 0.000 | 0.015 | 0.575 |  | 0.047 | 0.028 | 0.010 | 0.595 |
| SPW | 0.013 | 0.188 | 0.001 | 0.086 |  | 0.586 | 0.128 | 0.037 | 0.059 |
| CPW | 0.159 | 0.189 | 0.013 | 0.002 |  | 0.519 | 0.261 | 0.039 | 0.012 |
| GulL | 0.214 | 0.414 | 0.198 | 0.012 |  | 0.249 | 0.045 | 0.475 | 0.025 |
| HumL | 0.350 | 0.225 | 0.268 | 0.001 |  | 0.126 | 0.224 | 0.164 | 0.075 |
| PecL | 0.199 | 0.453 | 0.066 | 0.030 |  | 0.020 | 0.010 | 0.410 | 0.000 |
| AbdL | 0.366 | 0.222 | 0.219 | 0.042 |  | 0.431 | 0.015 | 0.250 | 0.001 |
| FemL | 0.007 | 0.044 | 0.079 | 0.321 |  | 0.136 | 0.065 | 0.012 | 0.405 |
| AnL | 0.067 | 0.310 | 0.052 | 0.036 |  | 0.057 | 0.001 | 0.012 | 0.033 |
| Af1L | 0.513 | 0.127 | 0.250 | 0.016 |  | 0.217 | 0.631 | 0.038 | 0.032 |
| Af2L | 0.611 | 0.017 | 0.269 | 0.021 |  | 0.261 | 0.566 | 0.057 | 0.034 |