<https://doi.org/10.5852/ejt.2022.826.1841.7173>

**Table of all data used for the study**

Table S1: List of all anatomid samples with information about cruise, sampling date, station, vent field, coordinates, depth, sample type, sampling tool. All molecularly studied anatomids and haplo- /paratype material with voucher specimen code, species name, number of specimens, holotype (H) or paratype (P) indicator, availability of confocal/ SEM image, BOLD process ID, GenBank accession number and the Museum ID code.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| INDEX cruise | Sampling date | Station | Sample ID | Vent Field | Sample site - Latitude | Sample site - Longitude | Sample site - Depth (m) | Sample type | Sampling tool | Voucher Specimen Code | Species | No. specimen | Type material (H/P) | SEM/CLSM | Process IDBOLD | GenBank accession number | Museum ID |
| INDEX2015 | 02.12.2015 | I15\_49R | I15\_49R\_F\_8 | Vent Field 2 | 23.78°S | 69.55°E | 3048.0 | rock | claw | I15\_Ma\_141 | - | 1 | - | - | INMAC319-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_142 | - | 1 | - | - | INMAC320-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_143 | - | 1 | - | - | INMAC321-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_144 | *Anatoma discapex*  | 1 | - | - | INMAC322-21 | Y lobo | - |
|  |  |  | I15\_49R\_B1\_1 | Vent Field 2 | 23.78°S | 69.55°E | 3049.0 | rock | claw | I15\_Ma\_2 | *Anatoma laevapex*  | 1 | - | - | INMAC302-21 | Y | - |
|  |  |  | I15\_49R\_B2\_1 | Vent Field 2 | 23.78°S | 69.55°E | 3049.0 | rock | claw | I15\_Ma\_8 | *Anatoma discapex*  | 1 | - | - | INMAC303-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_9 | *Anatoma declivis*  | 1 | - | - | INMAC304-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_128 | *Anatoma declivis*  | 1 | - | - | INMAC305-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_129 | *Anatoma declivis*  | 1 | - | - | INMAC306-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_130 | *Anatoma declivis*  | 1 | - | - | INMAC307-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_131 | *Anatoma declivis*  | 1 | - | - | INMAC308-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_132 | - | 1 | - | - | INMAC309-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_133 | *Anatoma discapex*  | 1 | - | - | INMAC310-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_134 | *Anatoma declivis*  | 1 | - | - | INMAC311-21 | Y lobo | - |
|  |  |  | I15\_49R\_B2\_2 | Vent Field 2 | 23.78°S | 69.55°E | 3049.0 | rock | claw | I15\_Ma\_32 | *Anatoma declivis*  | 1 | - | - | INMAC312-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_135 | *Anatoma discapex*  | 1 | - | - | INMAC313-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_136 | *Anatoma discapex*  | 1 | - | - | INMAC314-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_137 | *Anatoma declivis*  | 1 | - | - | INMAC315-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_138 | *Anatoma declivis*  | 1 | - | - | INMAC316-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_139 | - | 1 | - | - | INMAC317-21 | - | - |
|  |  |  | I15\_49R\_B3\_2 | Vent Field 2 | 23.78°S | 69.55°E | 3049.0 | rock | claw | I15\_Ma\_140 | - | 1 | - | - | INMAC318-21 | - | - |
|  | 04.12.2015 | I15\_53R | I15\_53R\_A\_2 | Vent Field 1 | 23.88°S | 69.62°E | 3171.0 | rock | claw | - | *Anatoma laevapex* | 2 | - | - | - | - | - |
|  | 08.12.2015 | I15\_62R | I15\_62R\_D\_1 | Vent Field 1 | 23.88°S | 69.62°E | 3296.0 | rock | claw | I15\_Ma\_145 | *Anatoma discapex*  | 1 | - | - | INMAC323-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_146 | - | 1 | - | - | INMAC324-21 |  | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_147 | *Anatoma discapex*  | 1 | - | - | INMAC325-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_169 | *Anatoma paucisculpta*  | 1 | H | SEM | INMAC445-21 | - | SMF 358992 |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma discapex* | 8 | - | - | - | - | - |
|  |  |  | I15\_62R\_D\_2 | Vent Field 1 | 23.88°S | 69.62°E | 3296.0 | rock | claw | I15\_Ma\_148 | *Anatoma discapex*  | 1 | - | - | INMAC326-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_149 | *Anatoma discapex*  | 1 | - | - | INMAC327-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_150 | *Anatoma discapex*  | 1 | - | - | INMAC328-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_151 | - | 1 | - | - | INMAC329-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_152 | - | 1 | - | - | INMAC330-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_153 | - | 1 | - | - | INMAC331-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_154 | *Anatoma discapex*  | 1 | - | - | INMAC332-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_155 | - | 1 | - | - | INMAC333-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_156 | - | 1 | - | - | INMAC334-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_157 | - | 1 | - | - | INMAC335-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_158 | *Anatoma discapex*  | 1 | - | - | INMAC336-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_159 | - | 1 | - | - | INMAC337-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_160 | - | 1 | - | - | INMAC338-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_161 | - | 1 | - | - | INMAC339-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_162 | - | 1 | - | - | INMAC340-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_163 | *Anatoma discapex*  | 1 | - | - | INMAC341-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_164 | - | 1 | - | - | INMAC342-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_165 | - | 1 | - | - | INMAC343-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_166 | - | 1 | - | - | INMAC344-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_167 | - | 1 | - | - | INMAC345-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I15\_Ma\_168 | - | 1 | - | - | INMAC346-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma* juvenile | 230 | - | - | - | - | - |
|  |  |  | I15\_62R\_E\_2 | Vent Field 1 | 23.88°S | 69.62°E | 3189.0 | rock | claw | - | *Anatoma* juvenile | 11 | - | - | - | - | - |
|  |  |  | I15\_62R\_B1\_1 | Vent Field 1 | 23.88°S | 69.62°E | 3082.0 | rock | claw | - | *Anatoma declivis* | 4 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma discapex* | 4 | - | - | - | - | - |
|  |  |  | I15\_62R\_B1\_2 | Vent Field 1 | 23.88°S | 69.62°E | 3082.0 | rock | claw | - | *Anatoma declivis* | 5 | - | - | - | - | - |
|  |  |  | I15\_62R\_B2\_1 | Vent Field 1 | 23.88°S | 69.62°E | 3082.0 | rock | claw | - | *Anatoma declivis* | 3 | - | - | - | - | - |
|  |  |  | I15\_62R\_B2\_2 | Vent Field 1 | 23.88°S | 69.62°E | 3082.0 | rock | claw | - | *Anatoma* juvenile | 4 | - | - | - | - | - |
|  |  |  | I15\_62R\_B3\_2 | Vent Field 1 | 23.88°S | 69.62°E | 3082.0 | rock | claw | I15\_Ma\_170 | - | 1 | - | - | INMAC446-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma declivis* | 2 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | - | 1 | - | - | - | - | - |
| INDEX2018 | 21.11.2018 | I18\_59RO | I18\_59RO\_AFT\_1 | Vent Field 4 | 27.65°S | 73.88°E | 2469.0 | sediment, rock | scoop, claw | - | *Anatoma declivis* | 48 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma discapex* | 4 | - | - | - | - | - |
|  |  |  | I18\_59RO\_AFT\_2 | Vent Field 4 | 27.65°S | 73.88°E | 2469.0 | sediment, rock | scoop, claw | - | *Anatoma declivis* | 11 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma discapex* | 5 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma laevapex* | 11 | - | - | - | - | - |
|  | 22.11.2018 | I18\_61RO | I18\_61RO\_4\_1 | Vent Field 4 | 27.65°S | 73.88°E | 2482.0 | rock | claw | - | *Anatoma declivis* | 8 | - | - | - | - | - |
|  |  |  | I18\_61RO\_11\_1 | Vent Field 4 | 27.65°S | 73.88°E | 2468.0 | rock | claw | - | *Anatoma declivis* | 2 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma paucisculpta* | 1 | - | - | - | - | - |
|  | 23.11.2018 | I18\_63RO | I18\_63RO\_A\_1 | Vent Field 4 | 27.65°S | 73.88°E | 2344.0 | rock | claw | - | *Anatoma declivis* | 8 | - | - | - | - | - |
|  |  |  | I18\_63RO\_A\_2 | Vent Field 4 | 27.65°S | 73.88°E | 2344.0 | rock | claw | - | *Anatoma discapex* | 8 | - | - | - | - | - |
|  |  |  | I18\_63RO\_H\_2 | Vent Field 4 | 27.65°S | 73.88°E | 2480.0 | rock | claw | - | *Anatoma declivis* | 1 | - | - | - | - | - |
|  |  |  | I18\_63RO\_J\_1 | Vent Field 4 | 27.65°S | 73.88°E | 2480.0 | rock | claw | - | *Anatoma discapex* | 6 | - | - | - | - | - |
|  |  |  | I18\_63RO\_J\_2 | Vent Field 4 | 27.65°S | 73.88°E | 2480.0 | rock | claw | - | *Anatoma discapex* | 14 | - | - | - | - | - |
|  |  |  | I18\_63RO\_SF\_1 | Vent Field 4 | 27.65°S | 73.88°E | 2469.0 | rock | claw | I18\_Ma\_256 | *Anatoma declivis*  | 1 | - | - | INMAC278-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_257 | *Anatoma declivis*  | 1 | - | - | INMAC279-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_258 | *Anatoma declivis*  | 1 | - | - | INMAC280-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_259 | *Anatoma declivis*  | 1 | - | - | INMAC281-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_260 | *Anatoma declivis*  | 1 | - | - | INMAC282-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_261 | *Anatoma declivis*  | 1 | - | - | INMAC283-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_262 | *Anatoma declivis*  | 1 | - | - | INMAC284-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_263 | *Anatoma declivis*  | 1 | - | - | INMAC285-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_264 | *Anatoma declivis*  | 1 | - | - | INMAC286-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_265 | *Anatoma declivis*  | 1 | - | - | INMAC287-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_266 | *Anatoma declivis*  | 1 | - | - | INMAC288-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_267 | *Anatoma declivis*  | 1 | - | - | INMAC289-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_268 | *Anatoma declivis*  | 1 | - | - | INMAC290-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_269 | *Anatoma declivis*  | 1 | - | - | INMAC291-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_270 | - | 1 | - | - | INMAC292-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_271 | *Anatoma paucisculpta*  | 1 | - | - | INMAC293-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_272 | *Anatoma paucisculpta*  | 1 | - | - | INMAC294-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_273 | *Anatoma declivis*  | 1 | - | - | INMAC295-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_274 | *Anatoma declivis*  | 1 | - | - | INMAC296-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_275 | *Anatoma declivis*  | 1 | - | - | INMAC297-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_276 | *Anatoma declivis*  | 1 | - | - | INMAC298-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_277 | *Anatoma declivis*  | 1 | - | - | INMAC299-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_278 | *Anatoma declivis*  | 1 | - | - | INMAC300-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I18\_Ma\_279 | *Anatoma declivis*  | 1 | - | - | INMAC301-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma declivis* | 23 | - | - | - | - | - |
|  |  |  | I18\_63RO\_AFT\_1 | Vent Field 4 | 27.65°S | 73.88°E | 2469.0 | rock | claw | - | *Anatoma declivis* | 24 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma paucisculpta* | 3 | - | - | - | - | - |
| INDEX2019 | 11.11.2019 | I19\_031RO | I19\_031RO\_SF\_01 | Vent Field 1 | 23.88°S | 69.62°E | 3082.0 | rock | claw | I19\_Ma\_86 | *Anatoma discapex*  | 1 | P | SEM | INMAC430-21 | - | SMF 358979 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_92 | *Anatoma declivis*  | 1 | P | SEM | INMAC436-21 | - | SMF 358985 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_93 | *Anatoma declivis*  | 1 | P | SEM | INMAC437-21 | Y | SMF 358986 |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma declivis* | 1 | - | - | - | - | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma discapex* | 5 | - | - | - | - | - |
|  |  |  | I19\_031RO\_SF\_02 | Vent Field 1 | 23.88°S | 69.62°E | 3082.0 | rock | claw | I19\_Ma\_78 | *Anatoma declivis*  | 1 | - | CLSM | INMAC422-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_79 | *Anatoma discapex*  | 1 | P | SEM | INMAC423-21 | - | SMF 358983 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_80 | *Anatoma discapex*  | 1 | P | SEM | INMAC424-21 | - | SMF 358981 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_81 | *Anatoma discapex* | 1 | P | SEM | INMAC425-21 | - | SMF 358982 |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma discapex* | 1 | P | SEM | - | - | SMF 358980 |
|  |  |  |  |  |  |  |  |  |  | - | - | 30 | - | - | - | - | - |
|  | 12.11.2019 | I19\_033RO | I19\_033RO\_A\_01 | Gauss | 23.87°S | 69.62°E | 3031.7 | rock | claw | - | *Anatoma discapex*  | 3 | - | - | - | - | - |
|  |  |  | I19\_033RO\_B\_02 | Gauss | 23.87°S | 69.62°E | 3032.3 | rock | claw | - | *Anatoma discapex* | 1 | - | - | - | - | - |
|  |  |  | I19\_033RO\_SF\_01 | Gauss | 23.87°S | 69.62°E | 2980.0 | rock | claw | I19\_Ma\_3 | *Anatoma declivis*  | 1 | - | - | INMAC347-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_4 | *Anatoma declivis*  | 1 | - | - | INMAC348-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_5 | *Anatoma discapex*  | 1 | - | - | INMAC349-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_6 | *Anatoma declivis*  | 1 | - | - | INMAC350-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_7 | *Anatoma declivis*  | 1 | - | - | INMAC351-21 | Y | - |
|  |  |  | I19\_033RO\_Pasa\_01 | Gauss | 23.87°S | 69.62°E | 2980.0 | rock | claw | I19\_Ma\_8 | *Anatoma laevapex*  | 1 | - | - | INMAC352-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_9 | *Anatoma laevapex*  | 1 | - | - | INMAC353-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_10 | *Anatoma laevapex*  | 1 | - | - | INMAC354-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_11 | *Anatoma laevapex*  | 1 | - | - | INMAC355-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_12 | *Anatoma laevapex*  | 1 | - | - | INMAC356-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_13 | *Anatoma laevapex*  | 1 | - | - | INMAC357-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_14 | *Anatoma laevapex*  | 1 | - | - | INMAC358-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_15 | *Anatoma laevapex*  | 1 | - | - | INMAC359-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_16 | *Anatoma laevapex*  | 1 | - | - | INMAC360-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_17 | *Anatoma laevapex*  | 1 | - | - | INMAC361-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_18 | *Anatoma laevapex*  | 1 | - | - | INMAC362-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_19 | *Anatoma laevapex*  | 1 | - | - | INMAC363-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_20 | *Anatoma laevapex*  | 1 | - | - | INMAC364-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_21 | *Anatoma laevapex*  | 1 | - | - | INMAC365-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_22 | *Anatoma laevapex*  | 1 | - | - | INMAC366-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_23 | *Anatoma laevapex*  | 1 | - | - | INMAC367-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_24 | *Anatoma laevapex*  | 1 | - | - | INMAC368-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_25 | *Anatoma laevapex*  | 1 | - | - | INMAC369-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_26 | *Anatoma laevapex*  | 1 | - | - | INMAC370-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_94 | *Anatoma declivis*  | 1 | H | SEM | INMAC438-21 | - | SMF 358984 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_95 | *Anatoma laevapex*  | 1 | - | - | INMAC439-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_96 | *Anatoma laevapex*  | 1 | - | - | INMAC440-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_97 | *Anatoma laevapex*  | 1 | - | CLSM | INMAC441-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_98 | *Anatoma laevapex*  | 1 | - | - | INMAC442-21 | Y lobo | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_99 | *Anatoma laevapex*  | 1 | - | - | INMAC443-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_100 | - | 1 | - | - | INMAC444-21 | - | - |
|  | 14.11.2019 | I19\_036RO | I19\_036RO\_C\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2754.2 | rock | claw | - | *Anatoma declivis* | 1 | - | - | - | - | - |
|  |  |  | I19\_036RO\_M\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2634.2 | rock | claw | - | *Anatoma declivis* | 3 | - | - | - | - | - |
|  |  |  | I19\_036RO\_Pasa\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2628.0 | rock | claw | - | *Anatoma declivis* | 1 | - | - | - | - | - |
|  | 16.11.2019 | I19\_042RO | I19\_042RO\_B\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2932.5 | rock | claw | - | *Anatoma discapex* | 1 | - | - | - | - | - |
|  |  |  | I19\_042RO\_B\_02 | Vent Field 3 | 25.47°S | 69.93°E | 2932.5 | rock | claw | - | *Anatoma discapex* | 5 | - | - | - | - | - |
|  |  |  | I19\_042RO\_D\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2934.6 | rock | claw | - | *Anatoma declivis* | 1 | - | - | - | - | - |
|  |  |  | I19\_042RO\_E\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2933.8 | rock | claw | - | *Anatoma declivis* | 3 | - | SEM | - | shell only | - |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma declivis* | 4 | - | - | - | - | - |
|  |  |  | I19\_042RO\_PF\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2628.0 | rock | claw | I19\_Ma\_27 | *Anatoma discapex*  | 1 | - | - | INMAC371-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_28 | *Anatoma discapex*  | 1 | - | - | INMAC372-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_29 | *Anatoma discapex*  | 1 | - | - | INMAC373-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_30 | *Anatoma discapex*  | 1 | - | - | INMAC374-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_31 | *Anatoma discapex*  | 1 | - | - | INMAC375-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_32 | *Anatoma discapex*  | 1 | - | - | INMAC376-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_33 | *Anatoma discapex*  | 1 | - | - | INMAC377-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_34 | *Anatoma discapex*  | 1 | - | - | INMAC378-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_35 | *Anatoma discapex*  | 1 | - | - | INMAC379-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_36 | *Anatoma discapex*  | 1 | - | - | INMAC380-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_37 | *Anatoma discapex* | 1 | - | - | INMAC381-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_38 | *Anatoma discapex*  | 1 | - | - | INMAC382-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_39 | *Anatoma discapex*  | 1 | - | - | INMAC383-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_40 | *Anatoma discapex*  | 1 | - | - | INMAC384-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_41 | *Anatoma discapex*  | 1 | - | - | INMAC385-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_42 | *Anatoma discapex*  | 1 | - | - | INMAC386-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_43 | *Anatoma discapex*  | 1 | - | - | INMAC387-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_44 | *Anatoma discapex*  | 1 | - | - | INMAC388-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_45 | *Anatoma discapex*  | 1 | - | - | INMAC389-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_46 | - | 1 | - | - | INMAC390-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_47 | *Anatoma discapex*  | 1 | - | - | INMAC391-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_48 | *Anatoma discapex*  | 1 | - | - | INMAC392-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_49 | *Anatoma discapex*  | 1 | - | - | INMAC393-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_50 | *Anatoma discapex*  | 1 | - | - | INMAC394-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_82 | *Anatoma discapex*  | 1 | - | - | INMAC426-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_83 | *Anatoma discapex*  | 1 | - | CLSM | INMAC427-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_84 | *Anatoma discapex*  | 1 | H | SEM | INMAC428-21 | - | SMF 358976 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_85 | *Anatoma discapex*  | 1 | P | SEM | INMAC429-21 | - | SMF 358978 |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma discapex* | 1 | P | SEM | - | - | SMF 358977 |
|  |  |  | I19\_042RO\_SF\_01 | Vent Field 3 | 25.47°S | 69.93°E | 2628.0 | rock | claw | I19\_Ma\_89 | *Anatoma declivis*  | 1 | P | SEM | INMAC433-21 | - | SMF 358987 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_90 | *Anatoma* sp. 2 DZMB\_2021\_0096 | 1 | - | - | INMAC434-21 | Y | - |
|  | 05.12.2019 | I19\_102RO | I19\_102RO\_G\_02 | Vent Field 5 | 25.47°S | 69.93°E | 2546.9 | rock | claw | I19\_Ma\_87 | *Anatoma declivis*  | 1 | P | SEM | INMAC431-21 | - | SMF 358988 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_88 | *Anatoma declivis*  | 1 | - | - | INMAC432-21 | Y | - |
|  |  |  | I19\_102RO\_K\_01 | Vent Field 5 | 25.47°S | 69.93°E | 2576.7 | rock | claw | I19\_Ma\_51 | *Anatoma declivis*  | 1 | - | - | INMAC395-21 | Y | - |
|  |  |  | I19\_102RO\_SF\_02 | Vent Field 5 | 25.47°S | 69.93°E | 2532.0 | rock | claw | **-** | *Anatoma laevapex* | 4 | **-** | **-** | **-** | **-** | - |
|  |  |  | I19\_102RO\_PASA\_01 | Vent Field 5 | 25.47°S | 69.93°E | 2532.0 | rock | claw | I19\_Ma\_54 | *Anatoma declivis*  | 1 | - | - | INMAC398-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_55 | *Anatoma declivis*  | 1 | **-** | **-** | INMAC399-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_56 | *Anatoma declivis*  | 1 | - | - | INMAC400-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_57 | *Anatoma declivis*  | 1 | **-** | **-** | INMAC401-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_58 | *Anatoma declivis*  | 1 | - | - | INMAC402-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_59 | *Anatoma declivis*  | 1 | **-** | **-** | INMAC403-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_60 | *Anatoma declivis*  | 1 | - | - | INMAC404-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_61 | *Anatoma declivis*  | 1 | **-** | **-** | INMAC405-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_62 | *Anatoma laevapex*  | 1 | - | - | INMAC406-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_63 | *Anatoma declivis*  | 1 | **-** | **-** | INMAC407-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_64 | *Anatoma declivis*  | 1 | - | - | INMAC408-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_65 | *Anatoma laevapex*  | 1 | **-** | **-** | INMAC409-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_66 | *Anatoma declivis*  | 1 | - | - | INMAC410-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_67 | *Anatoma declivis*  | 1 | **-** | **-** | INMAC411-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_68 | *Anatoma declivis*  | 1 | - | - | INMAC412-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_69 | *Anatoma laevapex* | 1 | - | - | INMAC413-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_70 | *Anatoma laevapex* | 1 | **-** | **-** | INMAC414-21­ | Y | - |
|  | 06.12.2019 | I19\_104RO | I19\_104RO\_PC2\_02 | Vent Field 5 | 25.47°S | 69.93°E | 2617.8 | sediment | push corer | I19\_Ma\_91 | *Anatoma paucisculpta*  | 1 | P | SEM | INMAC435-21 | shell only | SMF 358993 |
|  |  |  |  |  |  |  |  |  |  | - | *-* | 1 | - | - | - | - | - |
|  | 07.12.2019 | I19\_106RO | I19\_106RO\_E\_01 | Vent Field 5 | 25.47°S | 69.93°E | 2620.9 | rock | claw | I19\_Ma\_52 | *Anatoma paucisculpta*  | 1 | - | - | INMAC396-21 | Y | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_53 | *Anatoma* sp. 1 DZMB\_2021\_0095 | 1 | **-** | **-** | INMAC397-21 | Y | - |
|  |  |  | I19\_106RO\_SF\_01 | Vent Field 5 | 25.47°S | 69.93°E | 2532.0 | sediment, rock | claw, slurp gun | I19\_Ma\_71 | *Anatoma paucisculpta* | 1 | - | - | INMAC415-21 | Y | - |
|  | 11.12.2019 | I19\_127RO | I19\_127RO\_F\_01 | Vent Field 4 | 27.63°S | 73.87°E | 2457.2 | rock | claw | I19\_Ma\_77 | *Anatoma declivis*  | 1 | **-** | **-** | INMAC421-21 | - | - |
|  |  |  | I19\_127RO\_F\_02 | Vent Field 4 | 27.63°S | 73.87°E | 2457.2 | rock | claw | - | *Anatoma laevapex* | 8 | - | - | - | - | - |
|  |  |  | I19\_127RO\_H\_01 | Vent Field 4 | 27.63°S | 73.87°E | 2471.1 | rock | claw | I19\_Ma\_72 | *Anatoma laevapex*  | 1 | **-** | **-** | INMAC416-21 | - | - |
|  |  |  | I19\_127RO\_H\_02 | Vent Field 4 | 27.63°S | 73.87°E | 2471.1 | rock | claw | - | *Anatoma laevapex* | 10 | - | - | - | - | - |
|  |  |  | I19\_127RO\_SF\_01 | Vent Field 4 | 27.63°S | 73.87°E | 2469.0 | rock | claw | - | *Anatoma laevapex* | 16 | - | - | - | - | - |
|  |  |  | I19\_127RO\_SF\_02 | Vent Field 4 | 27.63°S | 73.87°E | 2469.0 | rock | claw | I19\_Ma\_73 | *Anatoma laevapex*  | 1 | - | CLSM | INMAC417-21 | - | - |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_74 | *Anatoma laevapex*  | 1 | H | SEM | INMAC418-21 | - | SMF 358989 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_75 | *Anatoma laevapex*  | 1 | P | SEM | INMAC419-21 | - | SMF 358990 |
|  |  |  |  |  |  |  |  |  |  | I19\_Ma\_76 | *Anatoma laevapex*  | 1 | P | SEM | INMAC420-21 | - | SMF 358991 |
|  |  |  |  |  |  |  |  |  |  | - | *Anatoma laevapex* | 9 | - | - | - | - | - |
|  |  |  | I19\_127RO\_PF\_02 | Vent Field 4 | 27.63°S | 73.87°E | 2469.0 | rock | claw | - | *Anatoma laevapex* | 8 | - | - | - | - | - |
|  |  |  | I19\_127RO\_SG2\_02 | Vent Field 4 | 27.63°S | 73.87°E | 2469.5 | sediment | slurp gun | - | *Anatoma laevapex* | 1 | - | - | - | - | - |

**Calculation of intraspecific distances**

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Figure S1: Calculation of intraspecific distances; results of the barcode gap analysis. A. Three scatterplots confirming the existence and magnitude of the Barcode Gap. B. Histograms plotting the mean intra-specific distances and the nearest neighbour distances for each species. The distributional details are summarized below each histogram.

Table S2: Calculation of intraspecific distances; Kimura 2-parameter distances were calculated for all analyzed anatomid sequences (≥ 500 bp) using the nearest neighbour summary by the barcode gap analysis tool of the Barcode of Life Data System (BOLD). Align sequencing option: BOLD aligner (Amino Acid based HMM), ambiguous base/ gap handling: pairwise deletion, ISD intraspecific distance. The table provides columns of the species identified, the mean intra-specific distance (ISD), the maximum ISD, the nearest neighbour (NN) species and the distance to the NN species. Maximum (and mean) ISD values are significantly smaller than NN values.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Identification | Mean ISD (%) | Max ISD (%) | Nearest Neighbor (NN) (%) | Distance to NN (%) |
| *Anatoma declivis* | 0.27 | 0.94 | *Anatoma discapex* | 6.34 |
| *Anatoma discapex* | 0.55 | 1.48 | *Anatoma declivis* | 6.34 |
| *Anatoma laevapex* | 0.18 | 0.33 | *Anatoma* sp. 2 DZMB\_2021\_0096 | 7.19 |
| *Anatoma paucisculpta* | 0 | 0 | *Anatoma* sp. 1 DZMB\_2021\_0095 | 14.66 |
| *Anatoma* sp. 1 | N/A | 0 | *Anatoma declivis* | 12.63 |
| *Anatoma* sp. 2 | N/A | 0 | *Anatoma laevapex* | 7.19 |

**Results of Automatic Barcode Gap Discovery (ABGD) species delimitation**

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Figure S2: Results of Automatic Barcode Gap Discovery (ABGD) species delimitation using *JC69 Jukes-Cantor* measure and the default settings (Pmin = 0.001, Pmax = 0.1, Steps = 10, X=1.5, Nb bins = 20) on the ABGD website (https://bioinfo.mnhn.fr/abi/public/abgd/abgdweb.html). A.Frequency histogram of distances. B. Ranked distances. C. Number of initial and recursive partitions.

Table S3: Automatic Barcode Gap Discovery (ABGD)results using *JC69 Jukes-Cantor* measure. Number of groups for initial and recursive partitions. Four (all) sequences from *Anatoma paucisculpta* were removed from the initial group 4 and placed in a separate group 10 in the recursive partitioning.

|  |  |
| --- | --- |
| **Initial Partition with prior maximal distance 2.15e-02;** **Distance** **JC69 Jukes-Cantor MinSlope=1.500000** | **Partition with prior maximal distance** **P=2.15e-02;****Distance JC69 Jukes-Cantor MinSlope=1.500000** |
| **Group[ 1 ] n: 1 ;id:** MW278816.1 | **Group[ 1 ] n: 1 ;id:** MW278816.1 |
| **Group[ 2 ] n: 1 ;id:** AY923934.1\_Anatoma\_euglypta | **Group[ 2 ] n: 1 ;id:** AY923934.1\_Anatoma\_euglypta |
| **Group[ 3 ] n: 1 ;id:** AB365211.1\_Anatoma\_sp.\_Izu | **Group[ 3 ] n: 1 ;id:** AB365211.1\_Anatoma\_sp.\_Izu |
| **Group[ 4 ] n: 5 ;id:** AB365210.1\_Anatoma\_sp.\_LauI19\_Ma\_52\_Mol\_Anatoma\_paucisculpta I19\_Ma\_71\_Mol\_Anatoma\_paucisculpta I18\_Ma\_271\_Mol\_Anatoma\_pauscisculpta I18\_Ma\_272\_Mol\_Anatoma\_pauscisculpta | **Group[ 4 ] n: 1 ;id:** AB365210.1\_Anatoma\_sp.\_Lau |
| **Group[ 5 ] n: 1 ;id:** I19\_Ma\_53\_Mol\_ Anatoma sp. 1 DZMB\_2021\_0095 | **Group[ 5 ] n: 1 ;id:** I19\_Ma\_53\_Mol\_ Anatoma sp. 1 DZMB\_2021\_0095 |
| **Group[ 6 ] n: 1 ;id:** I19\_Ma\_90\_Mol\_ Anatoma sp. 2 DZMB\_2021\_0096 | **Group[ 6 ] n: 1 ;id:** I19\_Ma\_90\_Mol\_ Anatoma sp. 2 DZMB\_2021\_0096 |
| **Group[ 7 ] n: 26 ;id:** I19\_Ma\_62\_Mol\_Anatoma\_laevapex I19\_Ma\_13\_Mol\_Anatoma\_laevapex I19\_Ma\_8\_Mol\_Anatoma\_laevapex I19\_Ma\_97\_Mol\_Anatoma\_laevapex I19\_Ma\_19\_Mol\_Anatoma\_laevapex I19\_Ma\_9\_Mol\_Anatoma\_laevapex I19\_Ma\_70\_Mol\_Anatoma\_laevapex I19\_Ma\_24\_Mol\_Anatoma\_laevapex I19\_Ma\_14\_Mol\_Anatoma\_laevapex I19\_Ma\_12\_Mol\_Anatoma\_laevapex I19\_Ma\_23\_Mol\_Anatoma\_laevapex I19\_Ma\_16\_Mol\_Anatoma\_laevapex I19\_Ma\_10\_Mol\_Anatoma\_laevapex I19\_Ma\_26\_Mol\_Anatoma\_laevapex I19\_Ma\_20\_Mol\_Anatoma\_laevapex I19\_Ma\_25\_Mol\_Anatoma\_laevapex I19\_Ma\_17\_Mol\_Anatoma\_laevapex I19\_Ma\_22\_Mol\_Anatoma\_laevapex I19\_Ma\_69\_Mol\_Anatoma\_laevapex I19\_Ma\_99\_Mol\_Anatoma\_laevapex I19\_Ma\_11\_Mol\_Anatoma\_laevapex I19\_Ma\_65\_Mol\_Anatoma\_laevapex I19\_Ma\_96\_Mol\_Anatoma\_laevapex I15\_Ma\_2\_Mol\_Anatoma\_laevapex I19\_Ma\_15\_Mol\_Anatoma\_laevapex I19\_Ma\_18\_Mol\_Anatoma\_laevapex | **Group[ 7 ] n: 26 ;id:** I19\_Ma\_62\_Mol\_Anatoma\_laevapex I19\_Ma\_13\_Mol\_Anatoma\_laevapex I19\_Ma\_8\_Mol\_Anatoma\_laevapex I19\_Ma\_97\_Mol\_Anatoma\_laevapex I19\_Ma\_19\_Mol\_Anatoma\_laevapex I19\_Ma\_9\_Mol\_Anatoma\_laevapex I19\_Ma\_70\_Mol\_Anatoma\_laevapex I19\_Ma\_24\_Mol\_Anatoma\_laevapex I19\_Ma\_14\_Mol\_Anatoma\_laevapex I19\_Ma\_12\_Mol\_Anatoma\_laevapex I19\_Ma\_23\_Mol\_Anatoma\_laevapex I19\_Ma\_16\_Mol\_Anatoma\_laevapex I19\_Ma\_10\_Mol\_Anatoma\_laevapex I19\_Ma\_26\_Mol\_Anatoma\_laevapex I19\_Ma\_20\_Mol\_Anatoma\_laevapex I19\_Ma\_25\_Mol\_Anatoma\_laevapex I19\_Ma\_17\_Mol\_Anatoma\_laevapex I19\_Ma\_22\_Mol\_Anatoma\_laevapex I19\_Ma\_69\_Mol\_Anatoma\_laevapex I19\_Ma\_99\_Mol\_Anatoma\_laevapex I19\_Ma\_11\_Mol\_Anatoma\_laevapex I19\_Ma\_65\_Mol\_Anatoma\_laevapex I19\_Ma\_96\_Mol\_Anatoma\_laevapex I15\_Ma\_2\_Mol\_Anatoma\_laevapex I19\_Ma\_15\_Mol\_Anatoma\_laevapex I19\_Ma\_18\_Mol\_Anatoma\_laevapex |
| **Group[ 8 ] n: 24 ;id:** I19\_Ma\_47\_Mol\_Anatoma\_discapex I19\_Ma\_49\_Mol\_Anatoma\_discapex I19\_Ma\_50\_Mol\_Anatoma\_discapex I19\_Ma\_28\_Mol\_Anatoma\_discapex I19\_Ma\_45\_Mol\_Anatoma\_discapex I19\_Ma\_32\_Mol\_Anatoma\_discapex I15\_Ma\_8\_Mol\_Anatoma\_discapex I19\_Ma\_34\_Mol\_Anatoma\_discapex I19\_Ma\_40\_Mol\_Anatoma\_discapex I19\_Ma\_41\_Mol\_Anatoma\_discapex I19\_Ma\_5\_Mol\_Anatoma\_discapex I19\_Ma\_27\_Mol\_Anatoma\_discapex I19\_Ma\_35\_Mol\_Anatoma\_discapex I19\_Ma\_36\_Mol\_Anatoma\_discapex I19\_Ma\_42\_Mol\_Anatoma\_discapex I19\_Ma\_48\_Mol\_Anatoma\_discapex I19\_Ma\_30\_Mol\_Anatoma\_discapex I19\_Ma\_38\_Mol\_Anatoma\_discapex I19\_Ma\_31\_Mol\_Anatoma\_discapex I19\_Ma\_29\_Mol\_Anatoma\_discapex I19\_Ma\_33\_Mol\_Anatoma\_discapex I19\_Ma\_44\_Mol\_Anatoma\_discapex I19\_Ma\_39\_Mol\_Anatoma\_discapex I19\_Ma\_43\_Mol\_Anatoma\_discapex | **Group[ 8 ] n: 24 ;id:** I19\_Ma\_47\_Mol\_Anatoma\_discapex I19\_Ma\_49\_Mol\_Anatoma\_discapex I19\_Ma\_50\_Mol\_Anatoma\_discapex I19\_Ma\_28\_Mol\_Anatoma\_discapex I19\_Ma\_45\_Mol\_Anatoma\_discapex I19\_Ma\_32\_Mol\_Anatoma\_discapex I15\_Ma\_8\_Mol\_Anatoma\_discapex I19\_Ma\_34\_Mol\_Anatoma\_discapex I19\_Ma\_40\_Mol\_Anatoma\_discapex I19\_Ma\_41\_Mol\_Anatoma\_discapex I19\_Ma\_5\_Mol\_Anatoma\_discapex I19\_Ma\_27\_Mol\_Anatoma\_discapex I19\_Ma\_35\_Mol\_Anatoma\_discapex I19\_Ma\_36\_Mol\_Anatoma\_discapex I19\_Ma\_42\_Mol\_Anatoma\_discapex I19\_Ma\_48\_Mol\_Anatoma\_discapex I19\_Ma\_30\_Mol\_Anatoma\_discapex I19\_Ma\_38\_Mol\_Anatoma\_discapex I19\_Ma\_31\_Mol\_Anatoma\_discapex I19\_Ma\_29\_Mol\_Anatoma\_discapex I19\_Ma\_33\_Mol\_Anatoma\_discapex I19\_Ma\_44\_Mol\_Anatoma\_discapex I19\_Ma\_39\_Mol\_Anatoma\_discapex I19\_Ma\_43\_Mol\_Anatoma\_discapex |
| **Group[ 9 ] n: 39 ;id:** I19\_Ma\_57\_Mol\_Anatoma\_declivis I18\_Ma\_264\_Mol\_Anatoma\_declivis I19\_Ma\_93\_Mol\_Anatoma\_declivis I19\_Ma\_7\_Mol\_Anatoma\_declivis I15\_Ma\_9\_Mol\_Anatoma\_declivis I18\_Ma\_260\_Mol\_Anatoma\_declivis I19\_Ma\_59\_Mol\_Anatoma\_declivis I19\_Ma\_60\_Mol\_Anatoma\_declivis I18\_Ma\_266\_Mol\_Anatoma\_declivis I18\_Ma\_269\_Mol\_Anatoma\_declivis I19\_Ma\_56\_Mol\_Anatoma\_declivis I19\_Ma\_67\_Mol\_Anatoma\_declivis I18\_Ma\_258\_Mol\_Anatoma\_declivis I19\_Ma\_64\_Mol\_Anatoma\_declivis I18\_Ma\_263\_Mol\_Anatoma\_declivis I18\_Ma\_256\_Mol\_Anatoma\_declivis I18\_Ma\_268\_Mol\_Anatoma\_declivis I19\_Ma\_88\_Mol\_Anatoma\_declivis I15\_Ma\_32\_Mol\_Anatoma\_declivis I18\_Ma\_259\_Mol\_Anatoma\_declivis I18\_Ma\_261\_Mol\_Anatoma\_declivis I18\_Ma\_262\_Mol\_Anatoma\_declivis I18\_Ma\_273\_Mol\_Anatoma\_declivis I18\_Ma\_277\_Mol\_Anatoma\_declivis I19\_Ma\_58\_Mol\_Anatoma\_declivis I19\_Ma\_61\_Mol\_Anatoma\_declivis I19\_Ma\_63\_Mol\_Anatoma\_declivis I18\_Ma\_278\_Mol\_Anatoma\_declivis I18\_Ma\_279\_Mol\_Anatoma\_declivis I19\_Ma\_68\_Mol\_Anatoma\_declivis I18\_Ma\_276\_Mol\_Anatoma\_declivis I19\_Ma\_4\_Mol\_Anatoma\_declivis I19\_Ma\_51\_Mol\_Anatoma\_declivis I19\_Ma\_55\_Mol\_Anatoma\_declivis I18\_Ma\_257\_Mol\_Anatoma\_declivis I19\_Ma\_6\_Mol\_Anatoma\_declivis I18\_Ma\_274\_Mol\_Anatoma\_declivis I19\_Ma\_3\_Mol\_Anatoma\_declivis I19\_Ma\_54\_Mol\_Anatoma\_declivis | **Group[ 9 ] n: 39 ;id:** I19\_Ma\_57\_Mol\_Anatoma\_declivis I18\_Ma\_264\_Mol\_Anatoma\_declivis I19\_Ma\_93\_Mol\_Anatoma\_declivis I19\_Ma\_7\_Mol\_Anatoma\_declivis I15\_Ma\_9\_Mol\_Anatoma\_declivis I18\_Ma\_260\_Mol\_Anatoma\_declivis I19\_Ma\_59\_Mol\_Anatoma\_declivis I19\_Ma\_60\_Mol\_Anatoma\_declivis I18\_Ma\_266\_Mol\_Anatoma\_declivis I18\_Ma\_269\_Mol\_Anatoma\_declivis I19\_Ma\_56\_Mol\_Anatoma\_declivis I19\_Ma\_67\_Mol\_Anatoma\_declivis I18\_Ma\_258\_Mol\_Anatoma\_declivis I19\_Ma\_64\_Mol\_Anatoma\_declivis I18\_Ma\_263\_Mol\_Anatoma\_declivis I18\_Ma\_256\_Mol\_Anatoma\_declivis I18\_Ma\_268\_Mol\_Anatoma\_declivis I19\_Ma\_88\_Mol\_Anatoma\_declivis I15\_Ma\_32\_Mol\_Anatoma\_declivis I18\_Ma\_259\_Mol\_Anatoma\_declivis I18\_Ma\_261\_Mol\_Anatoma\_declivis I18\_Ma\_262\_Mol\_Anatoma\_declivis I18\_Ma\_273\_Mol\_Anatoma\_declivis I18\_Ma\_277\_Mol\_Anatoma\_declivis I19\_Ma\_58\_Mol\_Anatoma\_declivis I19\_Ma\_61\_Mol\_Anatoma\_declivis I19\_Ma\_63\_Mol\_Anatoma\_declivis I18\_Ma\_278\_Mol\_Anatoma\_declivis I18\_Ma\_279\_Mol\_Anatoma\_declivis I19\_Ma\_68\_Mol\_Anatoma\_declivis I18\_Ma\_276\_Mol\_Anatoma\_declivis I19\_Ma\_4\_Mol\_Anatoma\_declivis I19\_Ma\_51\_Mol\_Anatoma\_declivis I19\_Ma\_55\_Mol\_Anatoma\_declivis I18\_Ma\_257\_Mol\_Anatoma\_declivis I19\_Ma\_6\_Mol\_Anatoma\_declivis I18\_Ma\_274\_Mol\_Anatoma\_declivis I19\_Ma\_3\_Mol\_Anatoma\_declivis I19\_Ma\_54\_Mol\_Anatoma\_declivis |
|  | **Group[ 10 ] n: 4 ;id:** I19\_Ma\_52\_Mol\_Anatoma\_paucisculpta I19\_Ma\_71\_Mol\_Anatoma\_paucisculpta I18\_Ma\_271\_Mol\_Anatoma\_pauscisculpta I18\_Ma\_272\_Mol\_Anatoma\_pauscisculpta |

**Results of CD-Hit species delimitation**

Table S4: Results of CD-Hit species delimitation, listing clusters and sequences. CD-HIT-EST method was used on CD-HIT Suite web server at UCSD (http://weizhong-lab.ucsd.edu/cdhit-web-server/cgi-bin/index.cgi) with default settings and the pre-defined threshold of 98.3%. The reference sequence of each cluster is marked by \*.

**>Cluster 0**

0 582nt, >I18\_Ma\_268\_Mol\_Anatoma\_declivis... at +/99.83%

1 658nt, >I18\_Ma\_274\_Mol\_Anatoma\_declivis... \*

2 589nt, >I19\_Ma\_55\_Mol\_Anatoma\_declivis... at +/99.83%

3 658nt, >I19\_Ma\_59\_Mol\_Anatoma\_declivis... at +/99.54%

4 658nt, >I19\_Ma\_88\_Mol\_Anatoma\_declivis... at +/99.85%

5 658nt, >I15\_Ma\_9\_Mol\_Anatoma\_declivis... at +/99.70%

6 658nt, >I15\_Ma\_32\_Mol\_Anatoma\_declivis... at +/99.85%

7 658nt, >I18\_Ma\_256\_Mol\_Anatoma\_declivis... at +/99.70%

8 658nt, >I18\_Ma\_257\_Mol\_Anatoma\_declivis... at +/99.85%

9 658nt, >I18\_Ma\_259\_Mol\_Anatoma\_declivis... at +/99.85%

10 656nt, >I18\_Ma\_260\_Mol\_Anatoma\_declivis... at +/99.70%

11 658nt, >I18\_Ma\_261\_Mol\_Anatoma\_declivis... at +/99.85%

12 658nt, >I18\_Ma\_262\_Mol\_Anatoma\_declivis... at +/99.85%

13 658nt, >I18\_Ma\_263\_Mol\_Anatoma\_declivis... at +/99.70%

14 624nt, >I18\_Ma\_264\_Mol\_Anatoma\_declivis... at +/99.68%

15 582nt, >I18\_Ma\_269\_Mol\_Anatoma\_declivis... at +/99.66%

16 658nt, >I18\_Ma\_273\_Mol\_Anatoma\_declivis... at +/99.85%

17 658nt, >I18\_Ma\_277\_Mol\_Anatoma\_declivis... at +/99.85%

18 658nt, >I19\_Ma\_3\_Mol\_Anatoma\_declivis... at +/100.00%

19 658nt, >I19\_Ma\_4\_Mol\_Anatoma\_declivis... at +/99.54%

20 658nt, >I19\_Ma\_7\_Mol\_Anatoma\_declivis... at +/99.54%

21 645nt, >I19\_Ma\_51\_Mol\_Anatoma\_declivis... at +/99.53%

22 645nt, >I19\_Ma\_54\_Mol\_Anatoma\_declivis... at +/100.00%

23 596nt, >I19\_Ma\_56\_Mol\_Anatoma\_declivis... at +/99.66%

24 658nt, >I19\_Ma\_58\_Mol\_Anatoma\_declivis... at +/99.85%

25 658nt, >I19\_Ma\_60\_Mol\_Anatoma\_declivis... at +/99.70%

26 658nt, >I19\_Ma\_61\_Mol\_Anatoma\_declivis... at +/99.85%

27 658nt, >I19\_Ma\_63\_Mol\_Anatoma\_declivis... at +/99.85%

28 658nt, >I19\_Ma\_64\_Mol\_Anatoma\_declivis... at +/99.70%

29 658nt, >I19\_Ma\_67\_Mol\_Anatoma\_declivis... at +/99.70%

30 646nt, >I19\_Ma\_68\_Mol\_Anatoma\_declivis... at +/99.85%

31 658nt, >I19\_Ma\_93\_Mol\_Anatoma\_declivis... at +/99.54%

32 658nt, >I18\_Ma\_258\_Mol\_Anatoma\_declivis... at +/99.70%

33 563nt, >I18\_Ma\_266\_Mol\_Anatoma\_declivis... at +/99.64%

34 622nt, >I18\_Ma\_276\_Mol\_Anatoma\_declivis... at +/99.84%

35 658nt, >I18\_Ma\_278\_Mol\_Anatoma\_declivis... at +/99.85%

36 658nt, >I18\_Ma\_279\_Mol\_Anatoma\_declivis... at +/99.85%

37 658nt, >I19\_Ma\_6\_Mol\_Anatoma\_declivis... at +/99.85%

38 618nt, >I19\_Ma\_57\_Mol\_Anatoma\_declivis... at +/99.68%

**>Cluster 1**

0 635nt, >I19\_Ma\_12\_Mol\_Anatoma\_laevapex... at +/99.69%

1 635nt, >I19\_Ma\_13\_Mol\_Anatoma\_laevapex... at +/99.69%

2 658nt, >I19\_Ma\_15\_Mol\_Anatoma\_laevapex... \*

3 580nt, >I19\_Ma\_18\_Mol\_Anatoma\_laevapex... at +/100.00%

4 658nt, >I19\_Ma\_26\_Mol\_Anatoma\_laevapex... at +/99.70%

5 602nt, >I15\_Ma\_2\_Mol\_Anatoma\_laevapex... at +/99.83%

6 658nt, >I19\_Ma\_8\_Mol\_Anatoma\_laevapex... at +/99.70%

7 658nt, >I19\_Ma\_9\_Mol\_Anatoma\_laevapex... at +/99.70%

8 658nt, >I19\_Ma\_10\_Mol\_Anatoma\_laevapex... at +/99.70%

9 633nt, >I19\_Ma\_14\_Mol\_Anatoma\_laevapex... at +/99.68%

10 658nt, >I19\_Ma\_16\_Mol\_Anatoma\_laevapex... at +/99.70%

11 658nt, >I19\_Ma\_17\_Mol\_Anatoma\_laevapex... at +/99.85%

12 635nt, >I19\_Ma\_19\_Mol\_Anatoma\_laevapex... at +/99.69%

13 635nt, >I19\_Ma\_20\_Mol\_Anatoma\_laevapex... at +/99.84%

14 658nt, >I19\_Ma\_22\_Mol\_Anatoma\_laevapex... at +/99.85%

15 638nt, >I19\_Ma\_23\_Mol\_Anatoma\_laevapex... at +/99.69%

16 635nt, >I19\_Ma\_25\_Mol\_Anatoma\_laevapex... at +/99.84%

17 658nt, >I19\_Ma\_65\_Mol\_Anatoma\_laevapex... at +/99.70%

18 658nt, >I19\_Ma\_69\_Mol\_Anatoma\_laevapex... at +/99.85%

19 513nt, >I19\_Ma\_70\_Mol\_Anatoma\_laevapex... at +/99.81%

20 658nt, >I19\_Ma\_96\_Mol\_Anatoma\_laevapex... at +/99.70%

21 658nt, >I19\_Ma\_97\_Mol\_Anatoma\_laevapex... at +/99.70%

22 658nt, >I19\_Ma\_99\_Mol\_Anatoma\_laevapex... at +/99.85%

23 658nt, >I19\_Ma\_11\_Mol\_Anatoma\_laevapex... at +/99.85%

24 555nt, >I19\_Ma\_24\_Mol\_Anatoma\_laevapex... at +/99.82%

25 638nt, >I19\_Ma\_62\_Mol\_Anatoma\_laevapex... at +/99.53%

**>Cluster 2**

0 658nt, >I19\_Ma\_27\_Mol\_Anatoma\_discapex... \*

1 658nt, >I19\_Ma\_28\_Mol\_Anatoma\_discapex... at +/99.24%

2 647nt, >I19\_Ma\_29\_Mol\_Anatoma\_discapex... at +/99.23%

3 606nt, >I19\_Ma\_30\_Mol\_Anatoma\_discapex... at +/99.34%

4 645nt, >I19\_Ma\_31\_Mol\_Anatoma\_discapex... at +/99.07%

5 658nt, >I19\_Ma\_32\_Mol\_Anatoma\_discapex... at +/99.24%

6 518nt, >I15\_Ma\_8\_Mol\_Anatoma\_discapex... at +/99.42%

7 658nt, >I19\_Ma\_5\_Mol\_Anatoma\_discapex... at +/98.78%

8 658nt, >I19\_Ma\_33\_Mol\_Anatoma\_discapex... at +/99.24%

9 658nt, >I19\_Ma\_34\_Mol\_Anatoma\_discapex... at +/99.39%

10 645nt, >I19\_Ma\_35\_Mol\_Anatoma\_discapex... at +/99.38%

11 658nt, >I19\_Ma\_36\_Mol\_Anatoma\_discapex... at +/99.39%

12 576nt, >I19\_Ma\_39\_Mol\_Anatoma\_discapex... at +/99.65%

13 625nt, >I19\_Ma\_40\_Mol\_Anatoma\_discapex... at +/99.36%

14 620nt, >I19\_Ma\_41\_Mol\_Anatoma\_discapex... at +/98.55%

15 658nt, >I19\_Ma\_42\_Mol\_Anatoma\_discapex... at +/99.39%

16 658nt, >I19\_Ma\_43\_Mol\_Anatoma\_discapex... at +/99.39%

17 648nt, >I19\_Ma\_44\_Mol\_Anatoma\_discapex... at +/99.38%

18 658nt, >I19\_Ma\_47\_Mol\_Anatoma\_discapex... at +/99.09%

19 658nt, >I19\_Ma\_48\_Mol\_Anatoma\_discapex... at +/98.94%

20 658nt, >I19\_Ma\_49\_Mol\_Anatoma\_discapex... at +/99.09%

21 650nt, >I19\_Ma\_50\_Mol\_Anatoma\_discapex... at +/99.38%

22 632nt, >I19\_Ma\_38\_Mol\_Anatoma\_discapex... at +/99.05%

23 642nt, >I19\_Ma\_45\_Mol\_Anatoma\_discapex... at +/99.22%

**>Cluster 3**

0 658nt, >I19\_Ma\_71\_Mol\_Anatoma\_paucisculpta... \*

1 637nt, >I18\_Ma\_271\_Mol\_Anatoma\_pauscisculpta... at +/100.00%

2 621nt, >I18\_Ma\_272\_Mol\_Anatoma\_pauscisculpta... at +/100.00%

3 603nt, >I19\_Ma\_52\_Mol\_Anatoma\_paucisculpta... at +/100.00%

**>Cluster 4**

0 658nt, >MW278816.1... \*

**>Cluster 5**

0 658nt, >I19\_Ma\_90\_Mol\_Anatoma\_n\_sp\_2\_DZMB\_2021\_0096... \*

**>Cluster 6**

0 646nt, >AB365210.1\_Anatoma\_sp.\_Lau... \*

**>Cluster 7**

0 646nt, >AB365211.1\_Anatoma\_sp.\_Izu... \*

**>Cluster 8**

0 624nt, >AY923934.1\_Anatoma\_euglypta... \*

**>Cluster 9**

0 621nt, >I19\_Ma\_53\_Mol\_Anatoma\_sp\_1\_DZMB\_2021\_0095... \*

**Results of Generalized mixed Yule-coalescent (GMYC) species delimitation**



Figure S3: Generalized mixed Yule-coalescent (GMYC) results on the basis of a Bayesian inference tree built with BEAST v1.8.3. (Yule-coalescent models as implemented in the R package ‘splits’). A. Likelihood function of the single threshold GMYC model. B. Lineage-through-time plot based on the ultrametric tree with red vertical line indicating the single threshold time between inter-intraspecific branching.

Table S5: Results of the applied models and tests for the analysis of Generalized mixed Yule-coalescent (GMYC) species delimitation.

|  |  |
| --- | --- |
| Analysis | Result |
| method |  single |
| likelihood of null model | 759.3237 |
| maximum likelihood of GMYC model | 788.2106 |
| likelihood ratio | 57.77384 |
| result of LR test | 2.847722e-13\*\*\* |
| number of ML clusters | 4 |
| confidence interval | 4-5 |
| number of ML entities | 10 |
| confidence interval | 9-11 |
| threshold time | -0.007686284 |



Figure S4: Generalized mixed Yule-coalescent (GMYC) ultrametric tree with 95 individuals obtained in BEAST including the 4 references from GenBank. Red clusters and black branches indicate estimated delimited species. Clear separate clusters are formed for *Anatoma paucisculpta, A. discapex, A. declivis* and *A. laevapex.* Additionally, singletons are found for *A.* sp 1 and *A.* sp 2. *Anatoma* sp Lau is similar to *A. paucisculpta*.

**Results of Bayesian Poisson tree processes (bPTP) species delimitation**

Table S6: Bayesian Poisson tree processes (bPTP)results, listing clusters and sequences. This result is based on an input file (unrooted Bayesian tree calculated by BEAST), inserted on the web server (<http://species.h-its.org/ptp/>) and the settings of 100000 MCMC generations, thinning of 100, and 0.1 burn-in. Ten clusters were identified including separate clusters for species collected in the Central Indian Ocean: *Anatoma* sp 1, *A.* sp 2, *A*. *laevapex*, *A*. *declivis*, *A*. *discapex*, *A*. *paucisculpta*.

|  |
| --- |
| Acceptance rate: 0.0085800000000000008 |
| Merge: 49912Split: 50088 |
| Estimated number of species is between 10 and 12 |
| Mean: 10.02 |
| Number of delimited species 10 |
| # Most supported partition found by simple heuristic search |

**Species 1 (support = 1.000)**

'AY923934.1\_Anatoma\_euglypta'

**Species 2 (support = 1.000)**

'MW278816.1'

**Species 3 (support = 1.000)**

'AB365211.1\_Anatoma\_sp.\_Izu'

**Species 4 (support = 1.000)**

I19\_Ma\_53\_Mol\_Anatoma\_sp\_1\_DZMB\_2021\_0095

**Species 5 (support = 1.000)**

I19\_Ma\_90\_Mol\_Anatoma\_n\_sp\_2\_DZMB\_2021\_0096

**Species 6 (support = 0.999)**

I19\_Ma\_9\_Mol\_Anatoma\_laevapex,I19\_Ma\_25\_Mol\_Anatoma\_laevapex,I19\_Ma\_70\_Mol\_Anatoma\_laevapex,I19\_Ma\_19\_Mol\_Anatoma\_laevapex,I19\_Ma\_26\_Mol\_Anatoma\_laevapex,I19\_Ma\_12\_Mol\_Anatoma\_laevapex,I19\_Ma\_16\_Mol\_Anatoma\_laevapex,I19\_Ma\_15\_Mol\_Anatoma\_laevapex,I19\_Ma\_65\_Mol\_Anatoma\_laevapex,I19\_Ma\_69\_Mol\_Anatoma\_laevapex,I19\_Ma\_17\_Mol\_Anatoma\_laevapex,I19\_Ma\_97\_Mol\_Anatoma\_laevapex,I19\_Ma\_20\_Mol\_Anatoma\_laevapex,I19\_Ma\_23\_Mol\_Anatoma\_laevapex,I19\_Ma\_11\_Mol\_Anatoma\_laevapex,I19\_Ma\_13\_Mol\_Anatoma\_laevapex,I19\_Ma\_8\_Mol\_Anatoma\_laevapex,I19\_Ma\_62\_Mol\_Anatoma\_laevapex,I19\_Ma\_18\_Mol\_Anatoma\_laevapex,I15\_Ma\_2\_Mol\_Anatoma\_laevapex,I19\_Ma\_96\_Mol\_Anatoma\_laevapex,I19\_Ma\_24\_Mol\_Anatoma\_laevapex,I19\_Ma\_99\_Mol\_Anatoma\_laevapex,I19\_Ma\_10\_Mol\_Anatoma\_laevapex,I19\_Ma\_22\_Mol\_Anatoma\_laevapex,I19\_Ma\_14\_Mol\_Anatoma\_laevapex

**Species 7 (support = 0.989)**

I19\_Ma\_54\_Mol\_Anatoma\_declivis,I18\_Ma\_257\_Mol\_Anatoma\_declivis,I18\_Ma\_274\_Mol\_Anatoma\_declivis,I19\_Ma\_3\_Mol\_Anatoma\_declivis,I19\_Ma\_55\_Mol\_Anatoma\_declivis,I19\_Ma\_6\_Mol\_Anatoma\_declivis,I19\_Ma\_60\_Mol\_Anatoma\_declivis,I19\_Ma\_59\_Mol\_Anatoma\_declivis,I15\_Ma\_9\_Mol\_Anatoma\_declivis,I18\_Ma\_260\_Mol\_Anatoma\_declivis,I18\_Ma\_276\_Mol\_Anatoma\_declivis,I19\_Ma\_88\_Mol\_Anatoma\_declivis,I19\_Ma\_7\_Mol\_Anatoma\_declivis,I18\_Ma\_258\_Mol\_Anatoma\_declivis,I19\_Ma\_57\_Mol\_Anatoma\_declivis,I18\_Ma\_264\_Mol\_Anatoma\_declivis,I19\_Ma\_93\_Mol\_Anatoma\_declivis,I18\_Ma\_261\_Mol\_Anatoma\_declivis,I18\_Ma\_263\_Mol\_Anatoma\_declivis,I18\_Ma\_273\_Mol\_Anatoma\_declivis,I19\_Ma\_63\_Mol\_Anatoma\_declivis,I18\_Ma\_259\_Mol\_Anatoma\_declivis,I19\_Ma\_68\_Mol\_Anatoma\_declivis,I19\_Ma\_67\_Mol\_Anatoma\_declivis,I18\_Ma\_266\_Mol\_Anatoma\_declivis,I18\_Ma\_269\_Mol\_Anatoma\_declivis,I18\_Ma\_256\_Mol\_Anatoma\_declivis,I15\_Ma\_32\_Mol\_Anatoma\_declivis,I18\_Ma\_279\_Mol\_Anatoma\_declivis,I18\_Ma\_262\_Mol\_Anatoma\_declivis,I19\_Ma\_61\_Mol\_Anatoma\_declivis,I18\_Ma\_277\_Mol\_Anatoma\_declivis,I18\_Ma\_268\_Mol\_Anatoma\_declivis,I19\_Ma\_58\_Mol\_Anatoma\_declivis,I19\_Ma\_64\_Mol\_Anatoma\_declivis,I18\_Ma\_278\_Mol\_Anatoma\_declivis,I19\_Ma\_56\_Mol\_Anatoma\_declivis,I19\_Ma\_51\_Mol\_Anatoma\_declivis,I19\_Ma\_4\_Mol\_Anatoma\_declivis

**Species 8 (support = 0.997)**

I19\_Ma\_44\_Mol\_Anatoma\_discapex,I19\_Ma\_29\_Mol\_Anatoma\_discapex,I19\_Ma\_39\_Mol\_Anatoma\_discapex,I19\_Ma\_43\_Mol\_Anatoma\_discapex,I19\_Ma\_5\_Mol\_Anatoma\_discapex,I19\_Ma\_48\_Mol\_Anatoma\_discapex,I19\_Ma\_38\_Mol\_Anatoma\_discapex,I19\_Ma\_33\_Mol\_Anatoma\_discapex,I19\_Ma\_31\_Mol\_Anatoma\_discapex,I19\_Ma\_30\_Mol\_Anatoma\_discapex,I19\_Ma\_41\_Mol\_Anatoma\_discapex,I19\_Ma\_45\_Mol\_Anatoma\_discapex,I19\_Ma\_40\_Mol\_Anatoma\_discapex,I19\_Ma\_47\_Mol\_Anatoma\_discapex,I19\_Ma\_27\_Mol\_Anatoma\_discapex,I19\_Ma\_28\_Mol\_Anatoma\_discapex,I19\_Ma\_35\_Mol\_Anatoma\_discapex,I19\_Ma\_42\_Mol\_Anatoma\_discapex,I19\_Ma\_36\_Mol\_Anatoma\_discapex,I19\_Ma\_50\_Mol\_Anatoma\_discapex,I19\_Ma\_49\_Mol\_Anatoma\_discapex,I15\_Ma\_8\_Mol\_Anatoma\_discapex,I19\_Ma\_34\_Mol\_Anatoma\_discapex,I19\_Ma\_32\_Mol\_Anatoma\_discapex

**Species 9 (support = 1.000)**

'AB365210.1\_Anatoma\_sp.\_Lau'

**Species 10 (support = 0.998)**

I19\_Ma\_71\_Mol\_Anatoma\_paucisculpta,I19\_Ma\_52\_Mol\_Anatoma\_paucisculpta,I18\_Ma\_271\_Mol\_Anatoma\_pauscisculpta,I18\_Ma\_272\_Mol\_Anatoma\_pauscisculpta

**Results of Barcode Index Number (BIN) Discordance**

Table S7: Analysis of Barcode Index Numbers (BINs). Total records used for analysis, discordant, concordant and singleton BINs are presented. Used as distance model: Kimura 2 Parameter; alignment options: BOLD aligner; ambiguous base/gap handling: pairwise deletion.

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary** | **Discordant BINs** | **Concordant BINs** | **Singleton BINs** |
| **Records:** 95 | **BIN Count:** 0 | **BIN Count:** 4 | **BIN Count:** 2 |
| **Records with BINs:** 95 | **Record Count:** 0 | **Record Count:** 93 | **Record Count:** 2 |
| **BINs:** 6 |  |  |  |

Table S8: Concordant Barcode Index Number (BIN) Report. All BINs represented by more than one individual are presented.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Process ID** | **BIN** | **Order** | **Family** | **Genus** | **Species** |
| INMAC278-21INMAC279-21INMAC280-21INMAC281-21INMAC282-21INMAC283-21INMAC284-21INMAC285-21INMAC286-21INMAC288-21INMAC290-21INMAC291-21INMAC295-21INMAC296-21INMAC298-21INMAC299-21INMAC300-21INMAC301-21INMAC304-21INMAC312-21INMAC347-21INMAC348-21INMAC350-21INMAC351-21INMAC395-21INMAC398-21INMAC399-21INMAC400-21INMAC401-21INMAC402-21INMAC403-21INMAC404-21INMAC405-21INMAC407-21INMAC408-21INMAC411-21INMAC412-21INMAC432-21INMAC437-21 | BOLD:AEI4428 | Lepetellida:39 | Anatomidae:39 | *Anatoma*:39 | *Anatoma declivis*:39 |
| INMAC293-21INMAC294-21INMAC396-21INMAC415-21 | BOLD:AEI2932 | Lepetellida:4 | Anatomidae:4 | *Anatoma*:4 | *Anatoma paucisculpta*:4 |
| INMAC302-21INMAC352-21INMAC353-21INMAC354-21INMAC355-21INMAC356-21INMAC357-21INMAC358-21INMAC359-21INMAC360-21INMAC361-21INMAC362-21INMAC363-21INMAC364-21INMAC366-21INMAC367-21INMAC368-21INMAC369-21INMAC370-21INMAC406-21INMAC409-21INMAC413-21INMAC414-21INMAC440-21INMAC441-21INMAC443-21 | BOLD:AEI6996 | Lepetellida:26 | Anatomidae:26 | *Anatoma*:26 | *Anatoma laevapex*:26 |
| INMAC303-21INMAC326-21INMAC327-21INMAC328-21INMAC332-21INMAC349-21INMAC371-21INMAC372-21INMAC373-21INMAC374-21INMAC375-21INMAC376-21INMAC377-21INMAC378-21INMAC379-21INMAC380-21INMAC382-21INMAC383-21INMAC384-21INMAC385-21INMAC386-21INMAC387-21INMAC388-21INMAC389-21INMAC391-21INMAC392-21INMAC393-21INMAC394-21 | BOLD:AEI3844 | Lepetellida:24 | Anatomidae:24 | *Anatoma*:24 | *Anatoma discapex*:24 |

Table S9: Singleton Barcode Index Number (BIN) Report. All BINs represented by a single individual are presented.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Process ID** | **BIN** | **Order** | **Family** | **Genus** | **Species** |
| INMAC397-21 | BOLD:AEI9052 | Lepetellida:1 | Anatomidae:1 | *Anatoma*:1 | *Anatoma* sp. 1 DZMB\_2021\_0095:1 |
| INMAC434-21 | BOLD:AEI3764 | Lepetellida:1 | Anatomidae:1 | *Anatoma*:1 | *Anatoma* sp. 2 DZMB\_2021\_0096:1 |