Table S2: List of phylogenetic analyses performed on the alignments, with the partitioning method chosen, the number and identity of the resulting subsets and the substitution model applied (\*: when applicable).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Alignment | Analysis | Partitioning method | No. subsets | | Subsets | | Model\* | |
| Section, concatenated | RAxML, Mr Bayes, BEAST | PartitionFinder, BIC | | 5 | | ITS 1 + ITS 2, ß-tubulin non-coding, IGS1 | | TrN + G | |
|  |  |  | |  | | 5.8S, ß-tubulin 1st codon + 2nd codon, *RPB1* 2nd codon | | JC + I | |
|  |  |  | |  | | *EFT2*.1 3rd codon + non-coding, *RPB1* 3rd codon, ß-tubulin 3rd codon, IGS3 | | HKY + G | |
|  |  |  | |  | | *EFT2*.1 1st codon + 2nd codon, *RPB1* 1st codon + non-coding, LSU | | TrN + I + G | |
|  |  |  | |  | | IGS16 | | K80+G | |
|  |  |  | |  | |  | |  | |
|  | \*BEAST | locus by locus | | 8 | | ITS | | GTR+G | |
|  |  |  | |  | | LSU | | GTR+I+G | |
|  |  |  | |  | | ß-tubulin | | HKY+G | |
|  |  |  | |  | | *EFT2*.1 | | K80+G | |
|  |  |  | |  | | *RPB1* | | SYM+G | |
|  |  |  | |  | | IGS1 | | HKY+G | |
|  |  |  | |  | | IGS3 | | HKY+G | |
|  |  |  | |  | | IGS16 | | K80+G | |
| Section, ITS | RAxML, | ITS 1 + 2 vs 5.8S | | 2 | | ITS1+ITS2 | |  | |
|  |  |  | |  | | 5.8S | |  | |
| Section, ß-tubulin | RAxML | by codons/non-coding | | 4 | | 1st codon | | / | |
|  |  |  | |  | | 2nd codon | | / | |
|  |  |  | |  | | 3rd codon | | / | |
|  |  |  | |  | | non-coding | | / | |
| Section, *EFT2*.1 | RAxML | by codons/non-coding | | 4 | | 1st codon | | / | |
|  |  |  | |  | | 2nd codon | | / | |
|  |  |  | |  | | 3rd codon | | / | |
|  |  |  | |  | | non-coding | | / | |
| Section, *RPB1* | RAxML | by codons/non-coding | | 4 | | 1st codon | | / | |
|  |  |  | |  | | 2nd codon | | / | |
|  |  |  | |  | | 3rd codon | | / | |
|  |  |  | |  | | non-coding | | / | |
| Section, LSU | RAxML | all in one | | 1 | |  | | / | |
| Section, IGS1 | RAxML | all in one | | 1 | |  | | / | |
| Section, IGS3 | RAxML | all in one | | 1 | |  | | / | |
| Section, IGS16 | RAxML | all in one | | 1 | |  | | / | |
| Dolichorhizoid, concatenated | RAxML, Mr Bayes, \*BEAST | | | 4 | | IGS1, IGS16, IGS3, ITS1 + ITS 2, ß-tubulin 3rd codon | | HKY + G | |
|  |  |  | |  | | LSU, ß-tubulin 1st codon + 2nd codon, *EFT2*.1 1st codon, *RPB1* 1st codon | | HKY + I | |
|  |  |  | |  | | 5.8S, *EFT2*.1 2nd codon, *RPB1* 2nd codon + non-codong | | F81 | |
|  |  |  | |  | | *EFT2*.1 3rd codon + non-codiong, *RPB1* 3rd codon | | K80 | |
|  |  |  | |  | |  | |  | |
|  |  |  | |  | |  | |  | |
|  | \*BEAST | locus by locus | | 8 | | ITS | | HKY+G | |
|  |  |  | |  | | LSU | | GTR+G | |
|  |  |  | |  | | ß-tubulin | | K80+G | |
|  |  |  | |  | | *EFT2*.1 | | K80 | |
|  |  |  | |  | | *RPB1* | | GTR | |
|  |  |  | |  | | IGS1 | | HKY+G | |
|  |  |  | |  | | IGS3 | | HKY | |
|  |  |  | |  | | IGS16 | | K80+G | |
| Dolichorhizoid, ITS | RAxML, BEAST | ITS 1 + 2 vs 5.8S | | 2 | | 5.8S | | JC | |
|  |  |  | |  | | ITS1+ITS2 | | HKY+G | |
| Dolichorhizoid, ß-tubulin | RAxML, BEAST | by codons/non-coding | | 4 | | 1st codon | | F81 | |
|  |  |  | |  | | 2nd codon | | JC | |
|  |  |  | |  | | 3rd codon | | F81 | |
|  |  |  | |  | | non-coding | | K80 | |
| Dolichorhizoid, *EFT2*.1 | RAxML, BEAST | by codons/non-coding | | 4 | | 1st codon | | F81 | |
|  |  |  | |  | | 2nd codon | | F81 | |
|  |  |  | |  | | 3rd codon | | HKY | |
|  |  |  | |  | | non-coding | | JC | |
| Dolichorhizoid, *RPB1* | RAxML, BEAST | by codons/non-coding | | 4 | | 1st codon | | F81 | |
|  |  |  | |  | | 2nd codon | | F81 | |
|  |  |  | |  | | 3rd codon | | HKY | |
|  |  |  | |  | | non-coding | | JC | |
| Dolichorhizoid, LSU | RAxML, BEAST | all in one | | 1 | | LSU | | GTR+G | |
| Dolichorhizoid, IGS1 | RAxML, BEAST | all in one | | 1 | | IGS1 | | HKY+G | |
| Dolichorhizoid, IGS3 | RAxML, BEAST | all in one | | 1 | | IGS3 | | HKY | |
| Dolichorhizoid, IGS16 | RAxML, BEAST | all in one | | 1 | | IGS16 | | K80+G | |
| Scabrosoid, concatenated | RAxML, Mr Bayes, \*BEAST | PartitionFinder, BIC | | 6 | | IGS3, ITS1 + ITS2, ß-tubulin non-coding, EFT2.1 non-coding | | HKY+G | |
|  |  |  | |  | | ß-tubulin 1st codon, *RPB1* 1st codon, *EFT2*.1 1st codon | | F81 | |
|  |  |  | |  | | 5.8S, ß-tubulin 2nd codon | | JC | |
|  |  |  | |  | | IGS16, ß-tubulin 3rd codon, *EFT2*.1 3rd codon, *RPB1* 3rd codon | | K80+G | |
|  |  |  | |  | | *EFT2*.1 2nd codon, *RPB1* 2nd codon | | F81 | |
|  |  |  | |  | | LSU, *RPB1* non-coding | | K80+I | |
|  | \*BEAST | locus by locus | | 7 | | ITS | | HKY+G | |
|  |  |  | |  | | LSU | | HKY+I+G | |
|  |  |  | |  | | ß-tubulin | | K80+G | |
|  |  |  | |  | | *EFT2*.1 | | K80 | |
|  |  |  | |  | | *RPB1* | | HKY | |
|  |  |  | |  | | IGS3 | | HKY | |
|  |  |  | |  | | IGS16 | | K80 | |
|  |  |  | |  | |  | |  | |
| Scabrosoid, ITS | BEAST |  | | 1 | | ITS | | HKY+G | |
|  | RAxML | ITS1+ITS2 vs 5.8S | | 2 | |  | | / | |
| Scabrosoid, ß-tubulin | RAxML | by codons/non-coding | | 4 | |  | | / | |
|  | BEAST | all in one | | 1 | | ß-tubulin | | K80+G | |
|  |  |  | |  | |  | |  | |
|  |  |  | |  | |  | |  | |
|  | RAxML | by codons/non-coding | |  | |  | |  | |
|  | BEAST | all in one | | 1 | | *EFT2*.1 | | K80 | |
|  |  |  | |  | |  | |  | |
|  |  |  | |  | |  | |  | |
| Scabrosoid, RPB1 | RAxML | by codons/non-coding | | 4 | |  | |  | |
|  | BEAST | all in one | | 1 | | *RPB1* | | HKY | |
|  |  |  | |  | |  | |  | |
|  |  |  | |  | |  | |  | |
| Scabrosoid, LSU | RAxML, BEAST | all in one | | 1 | | LSU | | HKY+I+G | |
| / |  |  | |  | |  | |  | |
| Scabrosoid, IGS3 |  | all in one | | 1 | | IGS3 | | HKY | |
| Scabrosoid, IGS16 |  | all in one | | 1 | | IGS16 | | K80 | |
| Polydactyloid, concatenated |  |  | | 4 | | IGS1, IGS3, ß-tubulin non-coding ITS1 + ITS2, *RPB1* 3rd codon | | HKY+I | |
|  |  |  | |  | | 5.8S, *EFT2*.1 1st codon, LSU, ß-tubulin 1st codon, *RPB1* 1st codon + non-coding | | HKY+I | |
|  |  |  | |  | | *EFT2*.1 2nd codon, *RPB1* 2nd codon, ß-tubulin 2nd codon | | F81 | |
|  |  |  | |  | | *EFT2*.1 3rd codon + non-coding, IGS16, ß-tubulin 3rd codon | | K80 | |
| Polydactyloid, ITS | RAxML, BEAST | ITS1+ITS2vs5.8S | | 2 | | 5.8S | | JC | |
|  |  |  | |  | | ITS1+ITS2 | | HKY+G | |
| Polydactyloid, ß-tubulin | RAxML | by codons/non-coding | | 4 | | 1st codon | | / | |
|  |  |  | |  | | 2nd codon | | / | |
|  |  |  | |  | | 3rd codon | | / | |
|  |  |  | |  | | non-coding | | / | |
| Polydactyloid, *EFT2*.1 | RAxML | by codons/non-coding | | 4 | | 1st codon | | / | |
|  |  |  | |  | | 2nd codon | | / | |
|  |  |  | |  | | 3rd codon | | / | |
|  |  |  | |  | | non-coding | | / | |
| Polydactyloid, *RPB1* | RAxML | by codons/non-coding | | 4 | | 1st codon | | / | |
|  |  |  | |  | | 2nd codon | | / | |
|  |  |  | |  | | 3rd codon | | / | |
|  |  |  | |  | | non-coding | | / | |
|  | RAxML | all in one | | 1 | | LSU | | / | |
| Polydactyloid, IGS1 | RAxML | all in one | | 1 | | IGS1 | | / | |
| Polydactyloid, IGS3 | RAxML | all in one | | 1 | | IGS3 | | / | |
| Polydactyloid, IGS16 | RAxML | all in one | | 1 | | IGS16 | | / | |