

Table S1: Information on the 158 species used for phylogenetic analysis.

Accession No.	Subfamily	Spices	Length(bp)
Cerambycidae			
MN473105	Aseminae	<i>Arhopalus rusticus</i>	15,860
MW067122	Aseminae	<i>Arhopalus unicolor</i>	15,760
OM161964	Aseminae	<i>Cephalallus oberthueri</i>	15,763
KC751569	Cerambycinae	<i>Massicus raddei</i>	15,858
KM112084	Cerambycinae	<i>Xylotrechus grayii</i>	15,540
KX087339	Cerambycinae	<i>Pyrrhidium sanguineum</i>	16,203
KY796055	Cerambycinae	<i>Chlorophorus simillimus</i>	13,675
MK570750	Cerambycinae	<i>Xystrocera globosa</i>	15,707
MK863508	Cerambycinae	<i>Nortia carinicolis</i>	15,602
MN442320	Cerambycinae	<i>Pyrrhidium sanguineum</i>	15,748
MN473096	Cerambycinae	<i>Chlorophorus diadema</i>	15,398
MN473097	Cerambycinae	<i>Stenodryas</i> sp.	15,333
MN473098	Cerambycinae	<i>Trichoferus campestris</i>	15,737
MN473101	Cerambycinae	<i>Clytobius davidis</i>	15,571
MN473112	Cerambycinae	<i>Purpuricenus lituratus</i>	15,744
MT371041	Cerambycinae	<i>Aromia bungii</i>	15,760
MT525962	Cerambycinae	<i>Neoplocaederus obesus</i>	15,683
MT740323	Cerambycinae	<i>Epipedocera atra</i>	15,662
MT809475	Cerambycinae	<i>Anoplistes halodendri</i>	15,697
MW617355	Cerambycinae	<i>Aromia bungii</i>	15,652
MW858149	Cerambycinae	<i>Zoodes fulguratus</i>	15,885
MZ054170	Cerambycinae	<i>Jebusaea hammerschmidtii</i>	15,619
MZ707509	Cerambycinae	<i>Chlorophorus annularis</i>	15,487
OK189517	Cerambycinae	<i>Turanoclytus namaganensis</i>	15,565
OK393714	Cerambycinae	<i>Aromia bungii</i>	15,759
OL415177	Cerambycinae	<i>Aromia bungii</i>	15,760
OM069308	Cerambycinae	<i>Nadezhdiella cantori</i>	16,049
OM069309	Cerambycinae	<i>Allotraeus orientalis</i>	15,966
OM069310	Cerambycinae	<i>Xoanodera maculata</i>	15,767
OM645192	Cerambycinae	<i>Trachylophus sinensis</i>	15,746
OP096419	Cerambycinae	<i>Demonax pseudonotabilis</i>	15,527
KX035158	Disteniinae	<i>Disteniidae</i> sp.	15,598
MN473106	Disteniinae	<i>Distenia gracilis</i>	15,704
MN473107	Disteniinae	<i>Typodryas</i> sp.	15,647
MN473109	Disteniinae	<i>Clytomelegena kabakovi</i>	15,816
ON838309	Disteniinae	<i>Distenia punctulatoides</i>	15675
MN420488	Dorcasominae	<i>Tsivoka simplicicollis</i>	16,700
MN447435	Dorcasominae	<i>Dorcasomus pinheyi</i>	16,040

OR149089	Lamiinae	<i>Acalolepta permutans</i>	15,500
OR149086	Lamiinae	<i>Batocera</i> sp.	16,843
OR149087	Lamiinae	<i>Eutetrappa metallescens</i>	15,505
OR149088*	Lamiinae	<i>Glenea pulchra</i>	15,470
OR149090	Lamiinae	<i>Lamiomimus gottschei</i>	16,421
OR149091	Lamiinae	<i>Macrochenus isabellinus</i>	15,675
OR149092	Lamiinae	<i>Mesosa myops</i>	18,499
OR149093	Lamiinae	<i>Oberea vittata</i>	15,494
OR149094	Lamiinae	<i>Pharsalia subgemmata</i>	16,553
OR149095	Lamiinae	<i>Rondibilis</i> sp.	15,854
OR149096	Lamiinae	<i>Saperda subobliterata</i>	15,499
FJ424074	Lamiinae	<i>Psacothoea hilaris</i>	15,856
JN986793	Lamiinae	<i>Batocera lineolata</i>	15,418
KJ809086	Lamiinae	<i>Monochamus alternatus</i>	15,874
KT726932	Lamiinae	<i>Anoplophora chinensis</i>	15,805
KX184801	Lamiinae	<i>Apriona swainsoni</i>	15,412
KY773692	Lamiinae	<i>Agapanthia daurica</i>	14,282
KY796054	Lamiinae	<i>Olenecamptus subobliteratus</i>	13,854
MF521888	Lamiinae	<i>Batocera lineolata</i>	15,420
MK423971	Lamiinae	<i>Aristobia reticulator</i>	15,838
MK863507	Lamiinae	<i>Blephephaeus succinator</i>	15,554
MK863509	Lamiinae	<i>Oberea yaoshana</i>	15,529
MK863510	Lamiinae	<i>Pterolophia</i> sp.	16,063
MK863511	Lamiinae	<i>Thermistis croceocincta</i>	15,503
MN044086	Lamiinae	<i>Glenea cantor</i>	15,514
MN248534	Lamiinae	<i>Anoplophora horsfieldi</i>	15,796
MN356095	Lamiinae	<i>Annamanum lunulatum</i>	15,610
MN473099	Lamiinae	<i>Acanthocinus griseus</i>	15,600
MN473100	Lamiinae	<i>Niphona lateraliplagiata</i>	15,902
MN473114	Lamiinae	<i>Agapanthia daurica</i>	17,153
MN473116	Lamiinae	<i>Epiglenea comes</i>	15,213
MN473117	Lamiinae	<i>Glenea licenti</i>	15,435
MN473119	Lamiinae	<i>Menesia sulphurata</i>	15,551
MN610562	Lamiinae	<i>Apomecyna saltator</i>	14,949
MN709785	Lamiinae	<i>Oberea diversipes</i>	15,499
MN882586	Lamiinae	<i>Anoplophora chinensis</i>	15,871
MT547196	Lamiinae	<i>Monochamus alternatus</i>	15,880
MT740324	Lamiinae	<i>Olenecamptus bilobus</i>	15,262
MW067123	Lamiinae	<i>Agelasta perplexa</i>	15,552
MW067124	Lamiinae	<i>Monochamus sparsutus</i>	16,029
MW364565	Lamiinae	<i>Anoplophora horsfieldi</i>	15,837

MW617354	Lamiinae	<i>Agapanthia amurensis</i>	15,512
MW617356	Lamiinae	<i>Moechotypa diphysis</i>	15,493
MW629558	Lamiinae	<i>Batocera lineolata</i>	16,158
MW858148	Lamiinae	<i>Paraglenea fortunei</i>	15,496
MW858150	Lamiinae	<i>Aulaconotus atronotatus</i>	14,491
MW858151	Lamiinae	<i>Apriona germarii</i>	14,858
MW858152	Lamiinae	<i>Monochamus alternatus</i>	14,189
MZ073344	Lamiinae	<i>Batocera lineolata</i>	15,420
MZ955033	Lamiinae	<i>Saperda tetrastigma</i>	15,563
NC013070	Lamiinae	<i>Psacotheta hilaris</i>	15,866
OK030905	Lamiinae	<i>Morimospasma tuberculatum</i>	15,485
OM161963	Lamiinae	<i>Batocera rubus</i>	16,158
ON641973	Lamiinae	<i>Pseudoechthistatus hei</i>	16,103
OP006455	Lamiinae	<i>Pseudoechthistatus chiangshunani</i>	16,419
OP169419	Lamiinae	<i>Monochamus saltuarius</i>	15,896
OP169420	Lamiinae	<i>Monochamus sartor urussovii</i>	15,912
OP613265	Lamiinae	<i>Sthenias yunnanus</i>	15,633
KX087246	Lepturinae	<i>Brachyta interrogationis</i>	18,165
KX087264	Lepturinae	<i>Cortodera humeralis</i>	15,928
KX087348	Lepturinae	<i>Stenurella nigra</i>	16,504
KY773687	Lepturinae	<i>Anastrangalia sequensi</i>	16,269
MN420469	Lepturinae	<i>Leptura annularis</i>	16,530
MN473080	Lepturinae	<i>Grammoptera ruficornis</i>	16,458
MN473082	Lepturinae	<i>Stenocorus meridianus</i>	16,227
MN473095	Lepturinae	<i>Peithona prionoides</i>	13,636
MN473103	Lepturinae	<i>Rhagium forticostatum</i>	16,274
MN473111	Lepturinae	<i>Teledapalpus zolotichini</i>	16,651
MN473113	Lepturinae	<i>Sachalinobia koltzei</i>	15,809
MN473110	Necydalinae	<i>Ullochaetes vacca</i>	15,593
MN420466	Oxypeltinae	<i>Oxypeltus quadrispinosus</i>	17,001
KY773686	Prioninae	<i>Aegosoma sinicum</i>	15,658
MF521835	Prioninae	<i>Callipogon relictus</i>	15,742
MG460483	Prioninae	<i>Dorystenes paradoxus</i>	15,922
MK614532	Prioninae	<i>Howea angulata</i>	15,626
MK614533	Prioninae	<i>Olethrius laevipennis</i>	15,690
MK614534	Prioninae	<i>Ultra nitida</i>	14,976
MK614535	Prioninae	<i>Phaolus metallicus</i>	15,997
MK614536	Prioninae	<i>Cnemoplites australis</i>	15,675
MK614537	Prioninae	<i>Bifidoprionus rufus</i>	15,590
MK614538	Prioninae	<i>Aesa media</i>	15,714
MK614540	Prioninae	<i>Rhipidocerus australasiae</i>	15,721

MK614541	Prioninae	<i>Brephilydia jejuna</i>	15,659
MK614542	Prioninae	<i>Hermerius prionoides</i>	13,696
MK614543	Prioninae	<i>Cacodacnus planicollis</i>	15,671
MK614544	Prioninae	<i>Geoffmonteithia queenslanda</i>	15,628
MK614545	Prioninae	<i>Enneaphyllus aeneipennis</i>	16,505
MK614546	Prioninae	<i>Eboraphyllus middletoni</i>	15,776
MK614547	Prioninae	<i>Eurynassa australis</i>	15,612
MK614548	Prioninae	<i>Toxeutes arcuatus</i>	15,859
MK614549	Prioninae	<i>Pseudoplites inexpectatus</i>	15,651
MK614550	Prioninae	<i>Agrianome spinicollis</i>	15,633
MK614551	Prioninae	<i>Analophus parallelus</i>	15,722
MK614552	Prioninae	<i>Xixuthrus</i> sp.	15,523
MK614553	Prioninae	<i>Teispes insularis</i>	15,632
MK614554	Prioninae	<i>Archetypus frenchi</i>	16,156
MK614555	Prioninae	<i>Sceleocantha</i> sp.	15,804
MK614556	Prioninae	<i>Cnemoplites edulis</i>	13,161
MK614559	Prioninae	<i>Toxeutes macleayi</i>	13,579
MN420471	Prioninae	<i>Aegolipton marginale</i>	16,759
MN420482	Prioninae	<i>Nepiodes costipennis multicarinatus</i>	15,935
MN473090	Prioninae	<i>Tragosoma depsarium</i>	15,712
MN473091	Prioninae	<i>Sarmyodus</i> sp.	15,720
MN473102	Prioninae	<i>Phlyctenosis</i> sp.	15,000
MN473115	Prioninae	<i>Aegosoma pallidum</i>	15,668
MN594765	Prioninae	<i>Megopis sinica</i>	15,689
MN607219	Prioninae	<i>Paulhutchinsonia pilosicollis</i>	15,846
MN829437	Prioninae	<i>Dorystenes granulosus</i>	15,858
OM161965	Prioninae	<i>Priotyrannus closteroides</i>	15,854
MN473088	Spondylidinae	<i>Saphanus piceus</i>	15,832
MN420476	Spondylinae	<i>Spondylis buprestoides</i>	16,070
MN473093	Vesperinae	<i>Vesperus sanzi</i>	16,125
MT826860	Spondylinae	<i>Spondylis buprestoides</i>	15,837
Vesperidae			
KT781589		<i>Spiniphilus spinicornis</i>	15,707
MN473092		<i>Mantitheus pekinensis</i>	15,656
MN473120		<i>Philus antennatus</i>	15,833
MZ747394		<i>Philus pallescens</i>	15,750
Cucujidae			
MK614518		<i>Platus angusticollis</i>	15,921
MK614524		<i>Palaestes abruptus</i>	15,534
NC051939		<i>Cucujus kempii</i>	15,492

Note: red text indicates the newly sequenced mitochondrial genomes in this study.