

Supplementary Materials

Table S1: Lists of isolate number, location, host and population code of *Lasiodiplodia*, *Neofusicoccum* and *Botryosphaeria* species. Bold text indicates new host records.

Taxon	Host	Location	Population code	No. of isolates
<i>Lasiodiplodia theobromae</i>	<i>Syzygium samarangense</i> (wax apple)	Linbian Township, Pingtung County	LTH (L)	6
		Linbian Township, Pingtung County	LTH (LL)	2
		Linbian Township, Pingtung County	LTH (LN)	5
		Changjihih Township, Pingtung County	LTH (KuL)	2
<i>Lasiodiplodia theobromae</i>	<i>Psidium guajava</i> (guava)	Yanchao Dist., Kaohsiung City	LTH (Z)	5
		Yanchao Dist., Kaohsiung City	LTH (Wa)	3
		Dajia Dist., Taichung City	LTH (DC)	1
		Danei Dist., Tainan City	LTH (P)	3
<i>Lasiodiplodia theobromae</i>	<i>Mangifera indica</i> (mango)	Maolin Dist., Kaohsiung City	LTH (ML)	4
		Nansi Dist., Tainan City	LTH (ZCM)	8
		Taoyuan Dist., Kaohsiung City	LTH (MM)	3
		Linluo Township, Pingtung County	LTH (LOM)	1
<i>Lasiodiplodia brasiliensis</i>	<i>Carica papaya</i> (papaya)	Nansi Dist., Tainan City	LTH (ZCP)	6
		Kaohsiung City	LTH (MP)	2
		Taimali Township, Taitung County	LHO (TZS)	2
		Taimali Township, Taitung County	LHO (TZ)	2
<i>Lasiodiplodia brasiliensis</i>	<i>Theobroma cacao</i> (cocoa)	Neipu Township, Pingtung County	LHO (PCOCO)	6
		Danei Dist., Tainan City	LTH (PP)	1
		Yanchao Dist., Kaohsiung City	LTH (MT)	1
		Liouguei Dist., Kaohsiung City	LBR (LK)	8
<i>Lasiodiplodia brasiliensis</i>	<i>Syzygium samarangense</i> (wax apple)	Neipu Township, Pingtung County	LBR (PLA)	1
		Taoyuan Dist., Kaohsiung City	LBR (MM)	1
		Kaohsiung City	LBR (NM)	1
		Linluo Township, Pingtung County	LHO (LO)	3
<i>Lasiodiplodia hormozganensis</i>	<i>Mangifera indica</i> (mango)	Maolin Dist., Kaohsiung City	LHO (ML)	5
		Dajia Dist., Taichung City	LHO (DC)	2
		Yanchao Dist., Kaohsiung City	LHO (YBL)	1
		Taimali Township, Taitung County	LHO (TZS)	5
<i>Lasiodiplodia pseudotheobromae</i>	<i>Psidium guajava</i> (guava)	Taimali Township, Taitung County	LHO (PbT)	2
		Changjihih Township, Pingtung County	LPSE (KuL)	3
		Yanchao Dist., Kaohsiung City	LPSE (Z)	1
		Tianliao Dist., Kaohsiung City	LPSE (ZLNB)	5

	<i>Mangifera indicngra</i> (mango)	Maolin Dist., Kaohsiung City Taoyuan Dist., Kaohsiung City Nansi Dist., Tainan City	LPSE (ML) LPSE (MM) LPSE (ZCM)	2 1 1
	<i>Syzygium samarangense</i> (wax apple)	Yanchao Dist., Kaohsiung City Neipu Township, Pingtung County Yuanshan Township, Yilan County	LRU (NYG) LRU (PLA) LRU (ILE)	1 5 2
		Yanchao Dist., Kaohsiung City Yanchao Dist., Kaohsiung City Yanchao Dist., Kaohsiung City Tianliao Dist., Kaohsiung City	LRU (Z) LRU (Wa) LRU (Zng) LRU (YBL) LRU (ZLNB)	2 4 6 2 2
<i>Lasiodiplodia rubropurpurea</i>	<i>Psidium guajava</i> (guava)	Lucao Township, Chiayi County Sinying Dist., Tainan City	LRU (LX) LRU (NEM)	1 1
	<i>Mangifera indica</i> (mango)	Maolin Dist., Kaohsiung City Sinying Dist., Tainan City Tianliao Dist., Kaohsiung City	LIR (ML) LIR (NEM) LIR (ZLMN)	1 3 4
<i>Lasiodiplodia iranensis</i>	<i>Psidium guajava</i> (guava)	Dajia Dist., Taichung City	LIR (DC)	1
	<i>Annona squamosa</i> (sugar apple)	Taimali Township, Taitung County	LIR (TZ)	2
	<i>Theobroma cacao</i> (cocoa)	Neipu Township, Pingtung County	LIR (PCOCO)	3
	<i>Syzygium samarangense</i> (wax apple)	Yanchao Dist., Kaohsiung City Linbian Township, Pingtung County	NEOM (NYG) NEOM (LN)	2 1
<i>Neofusicoccum mangiferae</i>	<i>Mangifera indica</i> (mango)	Lucao Township, Chiayi County Sinying Dist., Tainan City Neipu Township, Pingtung County	NEOM (LX) NEOM (NEM) NEOM (PWM)	3 1 1
	<i>Syzygium taiwanicum</i>	Lanyu Township, Taitung County	NEOM (LUBB)	4
<i>Botryosphaeria ramosa</i>	<i>Psidium guajava</i> (guava)	Yanchao Dist., Kaohsiung City Yanchao Dist., Kaohsiung City Nansi Dist., Tainan City	BOTR (Wa) BOTR (YBL) BOTR (ZC)	1 1 2
<i>Neofusicoccum parvum</i>	<i>Syzygium samarangense</i> (wax apple)	Linbian Township, Pingtung County Linbian Township, Pingtung County Liouguei Dist., Kaohsiung City	NEOP (L) NEOP (LL) NEOP (LK)	2 2 4

	Meishan Township, Chiayi County	NEOP (Zai)	3
	Changjhih Township, Pingtung County	NEOP (KuL)	4
	Linbian Township, Pingtung County	NEOP (LN)	13
	Xinyi Township, Nantou County	NEOP (NTZE)	22
<i>Syzygium taiwanicum</i>	Lanyu Township, Taitung County	NEOP (LUBB)	1
<i>Mangifera indica</i> (mango)	Tianliao Dist., Kaohsiung City	NEOP (ZLMN)	1
Total			213

Table S2: Estimated demographic parameters using the mismatch distribution analysis of *Lasiodiplodia* species.

Taxon	Locus	Spatial expansion		Demographic expansion	
		SSD	H_{Rag}	SSD	H_{Rag}
<i>L. theobromae</i>	ITS	0.00	0.59	0.00	0.59
	SSU	0.01	0.28	0.01	0.28
	TEF1	0.00	0.03	0.31*	0.03
	TUB2	0.00	0.37	0.00	0.37
	Combined	0.00	0.02	0.00	0.02
<i>L. brasiliensis</i>	ITS	0.03	0.10	0.03	0.10
	SSU	0.03	0.32	0.04	0.32
	TEF1	0.02	0.74	0.05*	0.75
	TUB2	0.02	0.74	0.06	0.74
	Combined	0.05	0.09	0.05	0.09
<i>L. hormozganensis</i>	ITS	0.02	0.09	0.02	0.09
	SSU	0.00	0.10	0.32*	0.10
	TEF1	0.01	0.81	0.12	0.81
	TUB2	0.03	0.11	0.03	0.11
	Combined	0.01	0.05	0.01	0.05
<i>L. pseudotheobromae</i>	ITS	0.01	0.76	0.03*	0.76
	SSU	0.02	0.05	0.62*	0.05
	TEF1	0.02	0.11	0.02	0.11
	TUB2	0.03	0.04	0.03	0.04
	Combined	0.01	0.03	0.21*	0.03
<i>L. rubropurpurea</i>	ITS	0.00	0.53	0.00	0.53
	SSU	0.00	0.20	0.01	0.20
	TEF1	0.03	0.04	0.03	0.04
	TUB2	0.00	0.53	0.00	0.53
	Combined	0.01	0.02	0.01	0.02
<i>L. iranensis</i>	ITS	na	na	na	na
	SSU	0.00	0.11	0.44*	0.11
	TEF1	0.04	0.22	0.11	0.22
	TUB2	0.02	0.05	0.01	0.05
	Combined	0.01	0.02	0.14*	0.02

Table S3: List of pairwise genetic distance values (F_{ST}) among *Lasiodiplodia* species based on sequence data.

	<i>L. theobromae</i>	<i>L. brasiliensis</i>	<i>L. hormozganensis</i>	<i>L. pseudotheobromae</i>	<i>L. rubropurpurea</i>	<i>L. iranensis</i>
<i>L. theobromae</i>						
<i>L. brasiliensis</i>	0.26					
<i>L. hormozganensis</i>	0.80	0.78				
<i>L. pseudotheobromae</i>	0.85	0.82	0.69			
<i>L. rubropurpurea</i>	0.87	0.85	0.86	0.86		
<i>L. iranensis</i>	0.75	0.71	0.80	0.77	0.82	

Table S4: List of pairwise genetic distance values (F_{ST}) values among different host species of *Lasiodiplodia* species based on sequence data. The grey area represents F_{ST} values among different host species within the same species. Note: [Species code] LTH: *L. theobromae*; LBR: *L. brasiliensis*; LHO: *L. hormozganensis*; LPSE: *L. pseudotheobromae*; LRU: *L. rubropurpurea*; LIR: *L. iranensis*. [Host species code] SS: *Syzygium samarangense* (wax apple); PG: *Psidium guajava* (guava); MI: *Mangifera indica* (mango); CP: *Carica papaya* (papaya); AS: *Annona squamosa* (sugar apple); TC: *Theobroma cacao* (cocoa); MB: *Musa basjoo* (banana).

		LTH (SS)	LTH (PG)	LTH (MI)	LTH (CP)	LTH (AS)	LBR (SS)	LHO (SS)	LHO (MI)	LHO (PG)	LHO (AS)	LPSE (SS)	LPSE (PG)	LRU (SS)	LRU (PG)	LIR (MI)	LIR (AS)
LTH	(PG)	0.05															
LTH	(MI)	0.07	0.01														
LTH	(CP)	0.11	0.08	0.06													
LTH	(AS)	0.34	0.15	0.15	0.21												
LTH	(TC)	0.17	0.07	0.08	0.13	0.06											
LBR	(MI)						0.05										
LHO	(MI)							0.24									
LHO	(PG)								0.00	0.09							
LHO	(AS)								0.25	0.20	0.11						
LHO	(MB)								0.67	0.16	0.15	0.33					
LPSE	(PG)											-0.02					
LPSE	(MI)											0.00	0.03				
LRU	(PG)												0.41				
LRU	(MI)												0.92	0.08			
LIR	(AS)													0.29			
LIR	(TC)													0.29	0.75		

Neofusicoccum parvum *Lasiodiplodia brasiliensis* *Lasiodiplodia pseudotheobromae* *Lasiodiplodia hormozganensis* *Lasiodiplodia rubropurpurea* *Lasiodiplodia iranensis*



Figure S1: *Lasiodiplodia* and *Neofusicoccum*, species colony morphology, grew on PDA after four weeks at 25 °C.

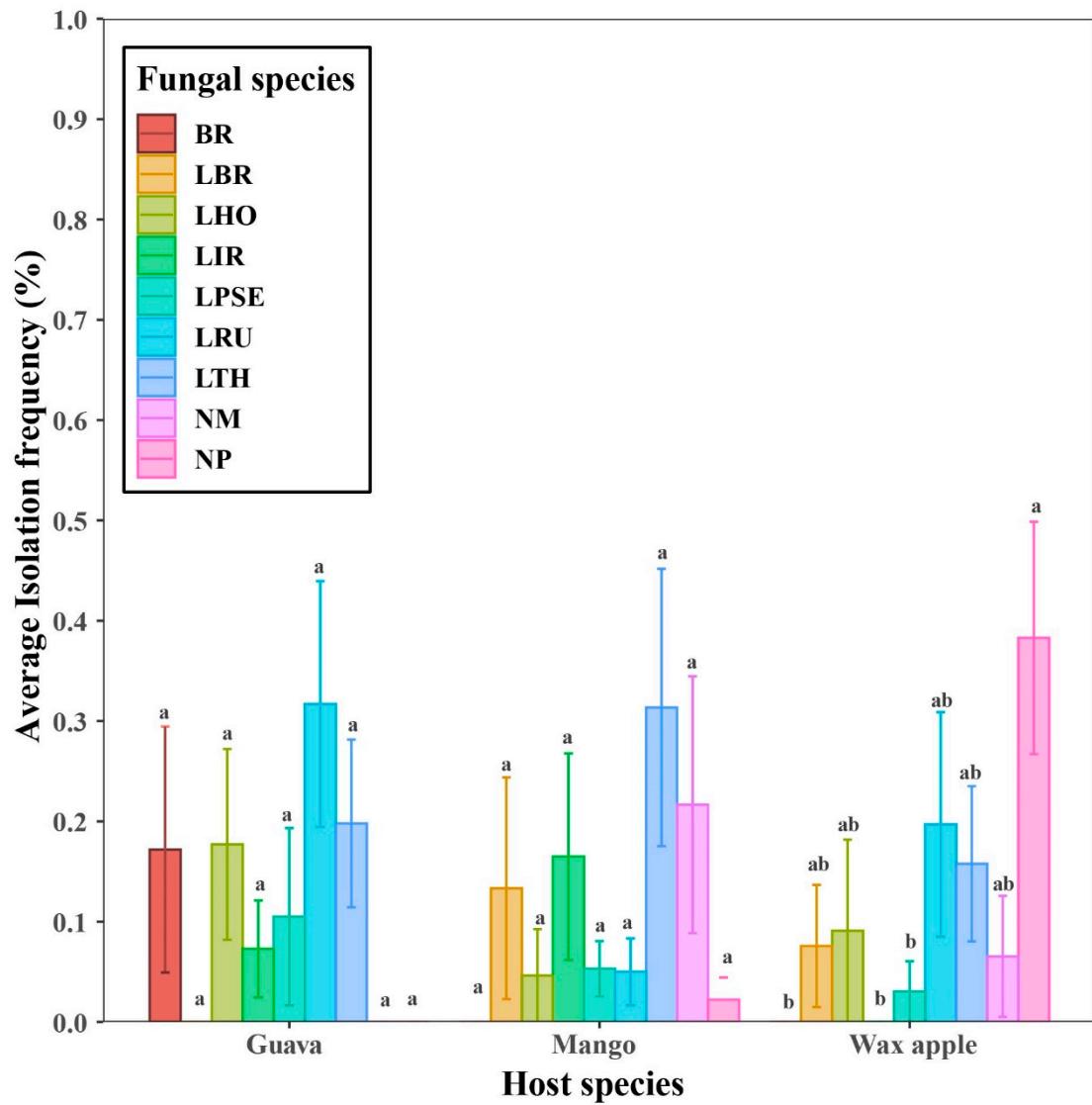


Figure S2: The average isolation frequencies (%) belonging to the Botryosphaeriaceae family in wax apple, guava, and mango hosts. The data presented show the mean \pm standard error. The significance level was determined using one-way ANOVA and Tukey simultaneous tests to compare the means. $p < 0.01$ indicates statistical significance. Species codes: LTH: *L. theobromae*; LBR: *L. brasiliensis*; LHO: *L. hormozganensis*; LPSE: *L. pseudotheobromae*; LRU: *L. rubropurpurea*; LIR: *L. iranensis*; NM: *N. mangiferae*; NP: *Neofusicoccum parvum*; BR: *Botryosphaeria ramosa*.

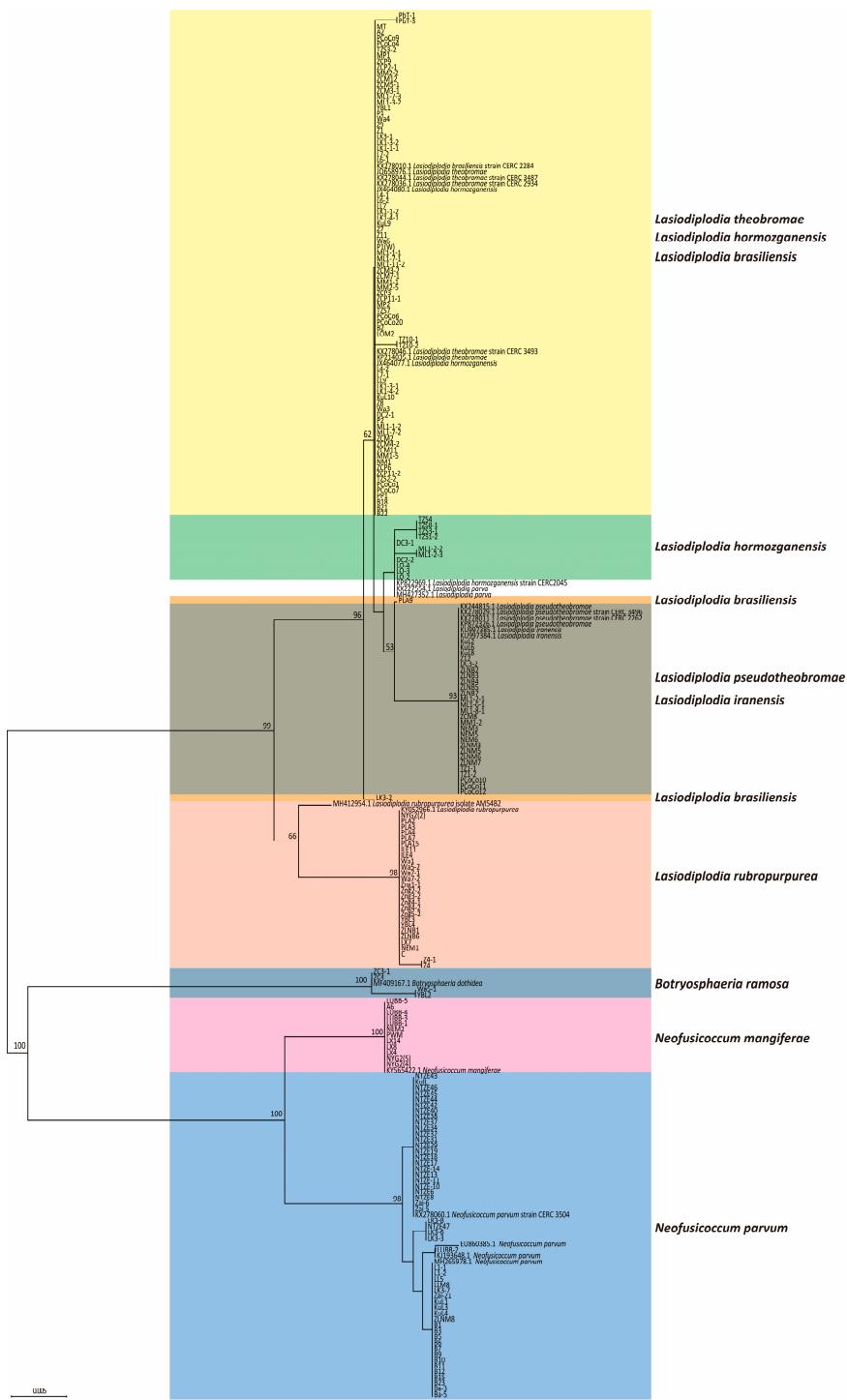


Figure S3: The phylogenetic relationships of the *Lasiodiplodia* and *Neofusicoccum* species isolated from fruit plants in Taiwan were constructed based on ITS sequence data and integration with the NCBI database. Bootstrap values by the Neighbor-Joining method were above branches.

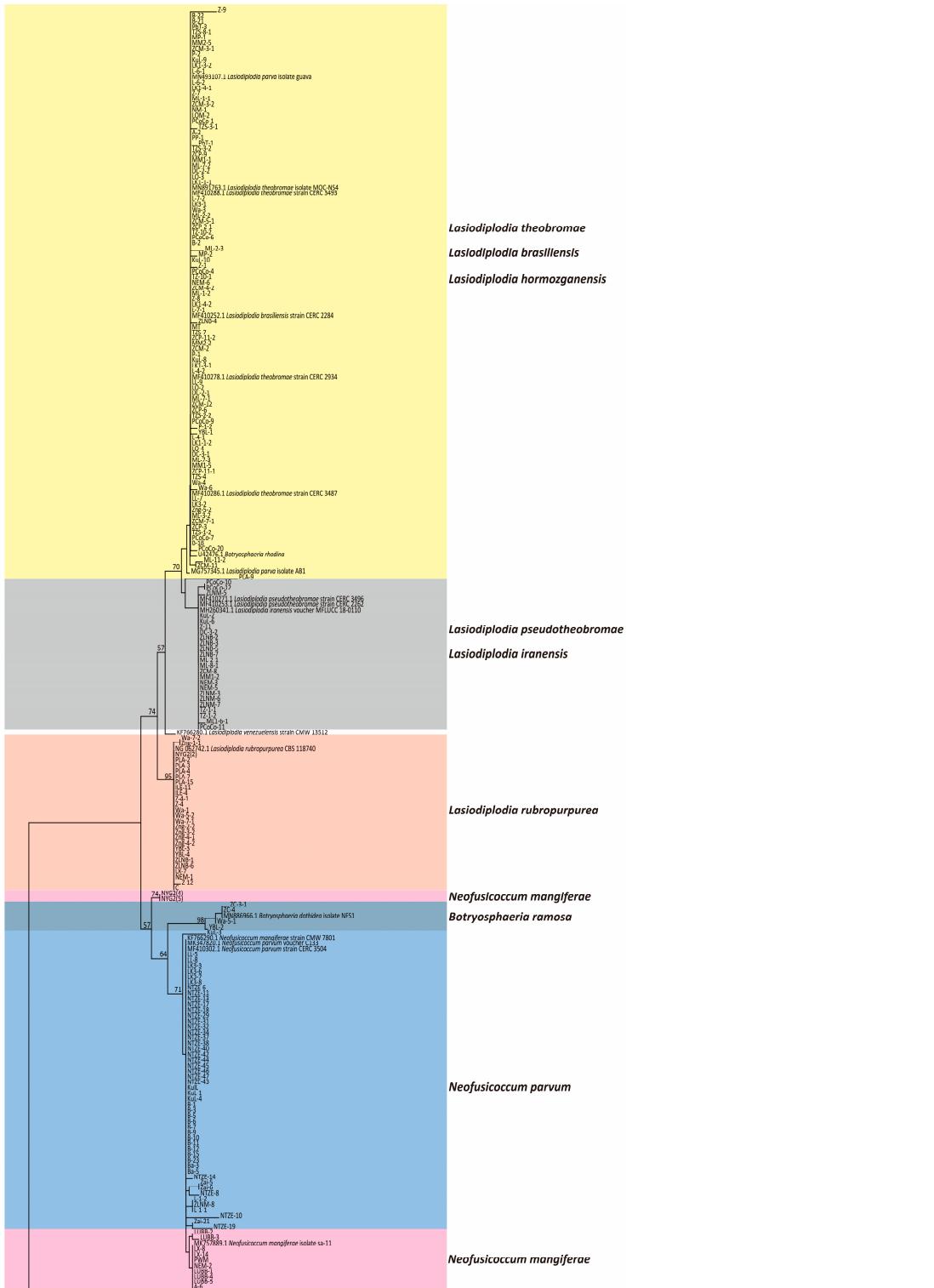


Figure S4: The phylogenetic relationships of the *Lasiodiplodia* and *Neofusicoccum* species isolated from fruit plants in Taiwan were constructed based on SSU sequence data and integration with the NCBI database. Bootstrap values by the Neighbor-Joining method were above branches.

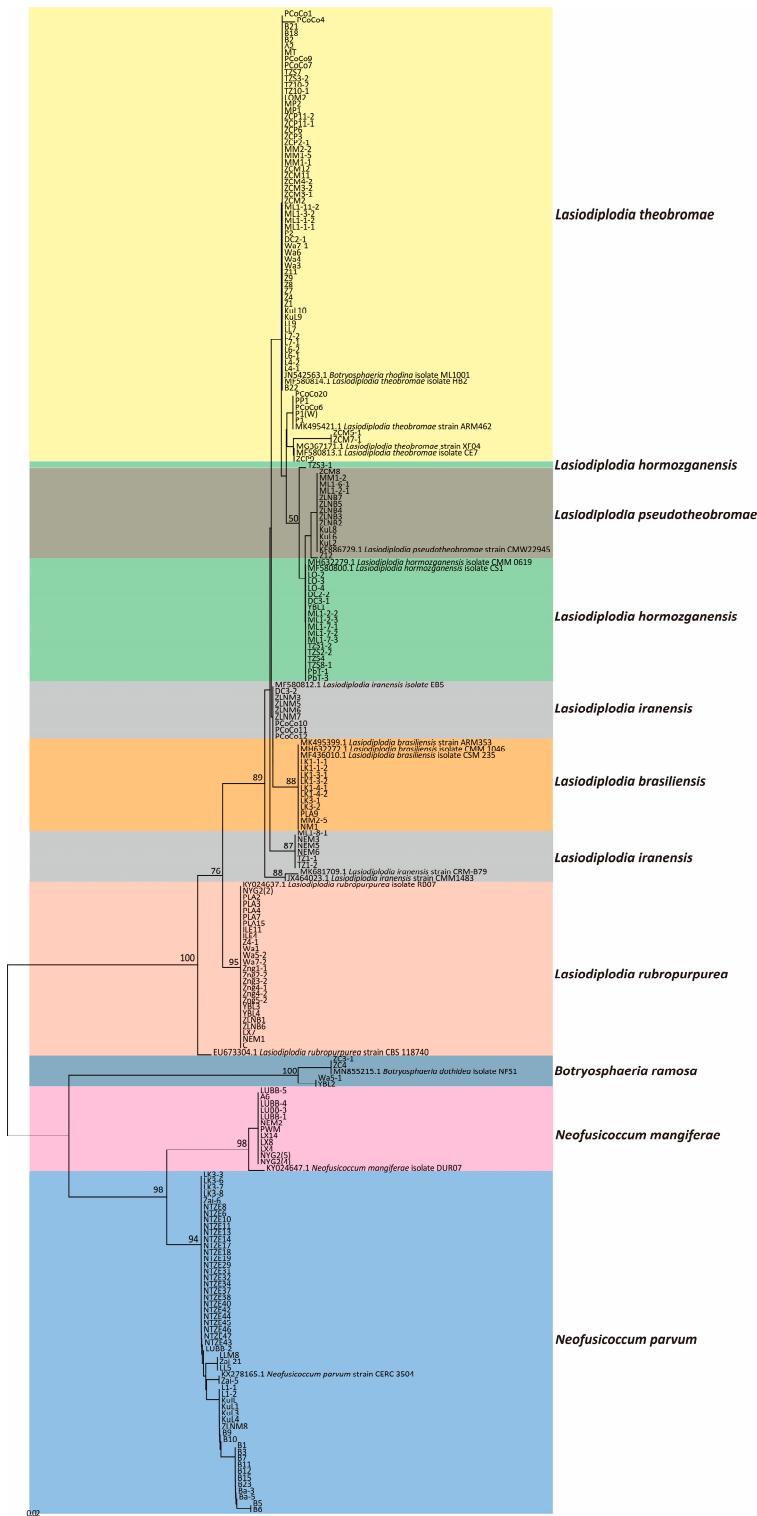


Figure S5: The phylogenetic relationships of the *Lasiodiplodia* and *Neofusicoccum* species isolated from fruit plants in Taiwan were constructed based on TEF1 sequence data and integration with the NCBI database. Bootstrap values by the Neighbor-Joining method were above branches.

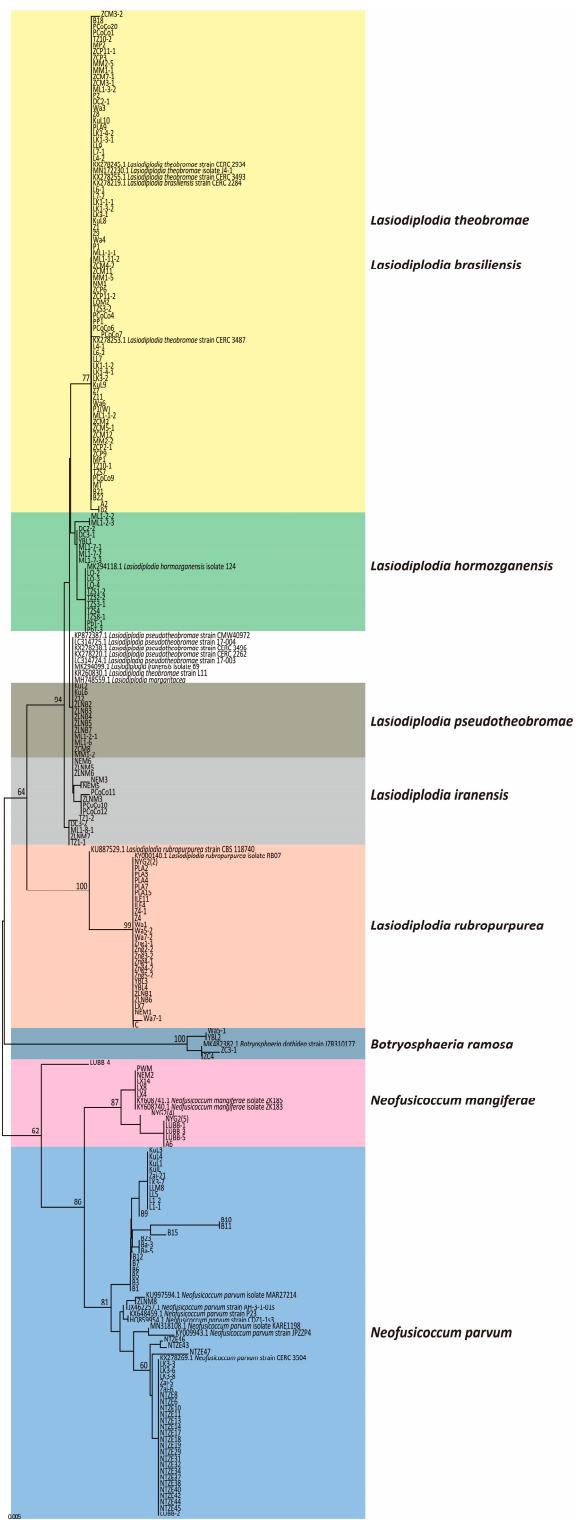
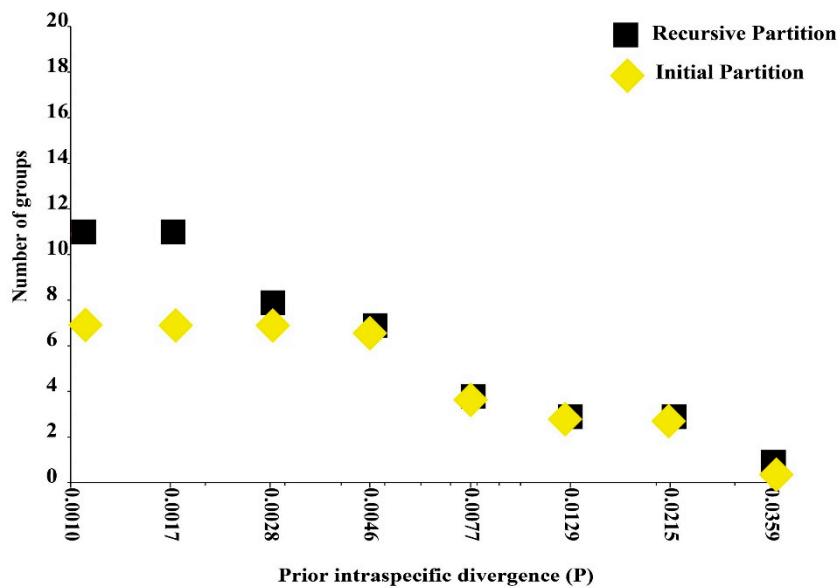


Figure S6: The phylogenetic relationships of the *Lasiodiplodia* and *Neofusicoccum* species isolated from fruit plants in Taiwan were constructed based on **TUB2** sequence data and integration with the NCBI database. Bootstrap values by the Neighbor-Joining method were above branches.

(A)



(B)

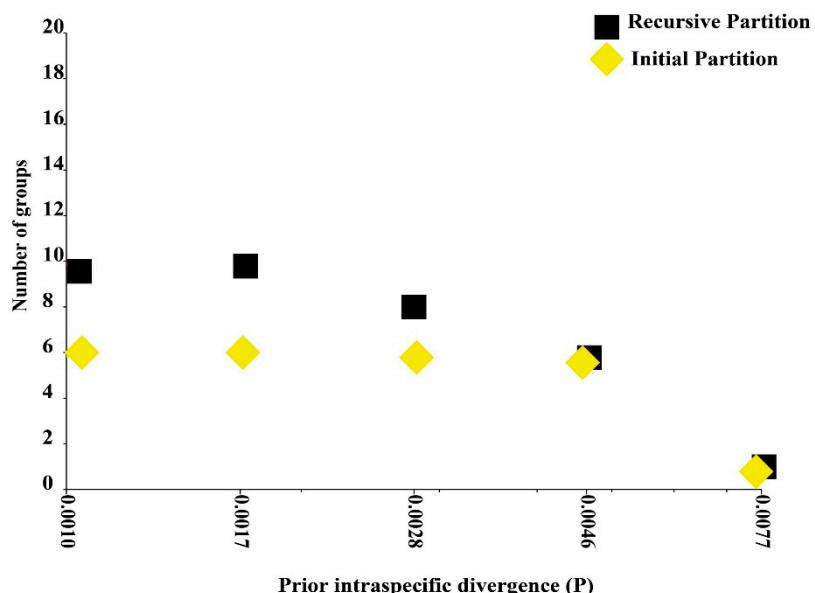


Figure S7: Automatic Barcode Gap Discovery (ABGD) results presented the number of partitions obtained in each prior threshold for (A), including six *Lasiodiplodia*, two *Neofusicoccum*, and one *Botryosphaeria* species. (B) included six *Lasiodiplodia* species.

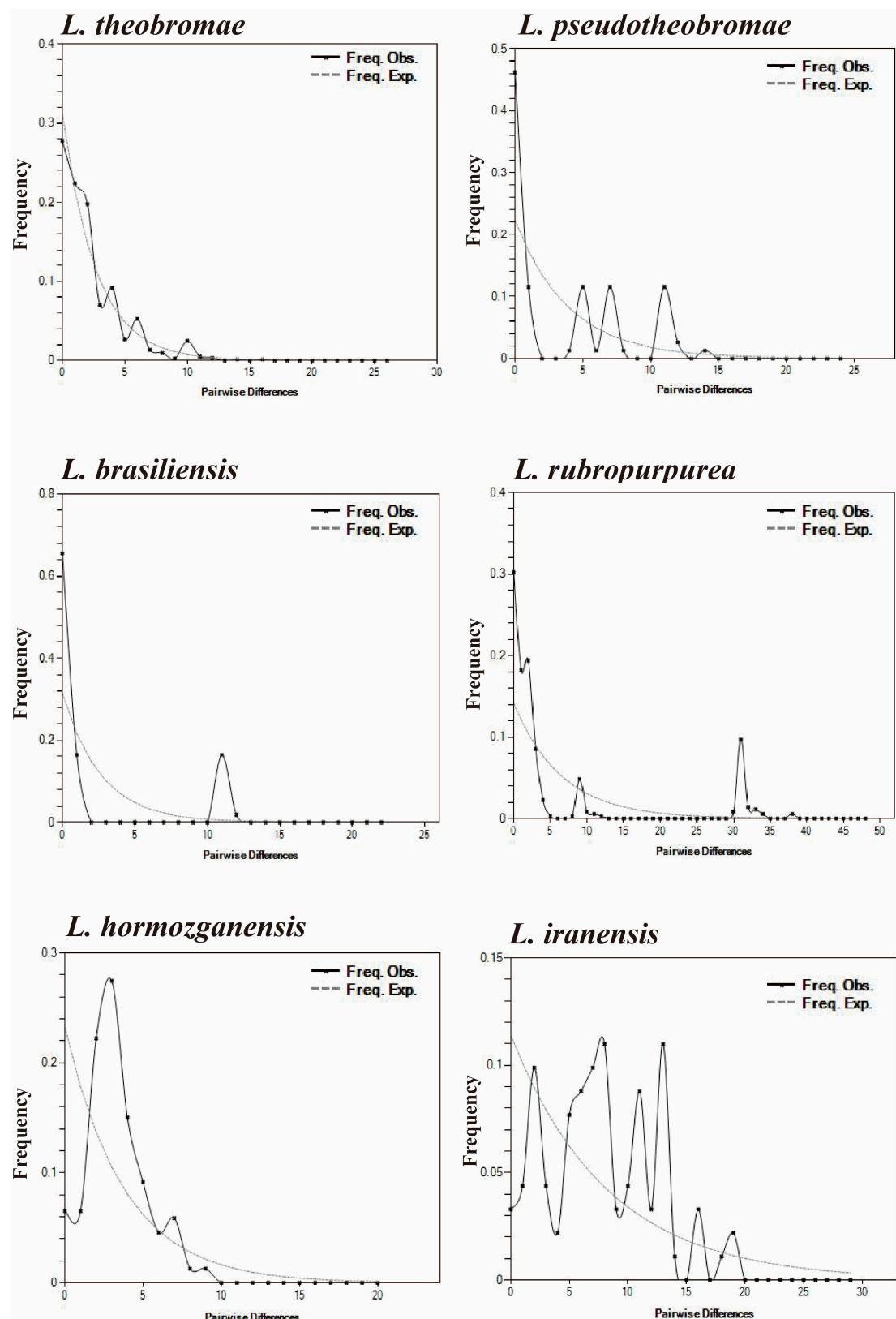


Figure S8: Mismatch distribution analysis in *Lasiodiplodia* species using sequence data from combined 4-loci. The X-axis displays the observed and expected pairwise differences in nucleotides, while the Y-axis displays their frequencies.

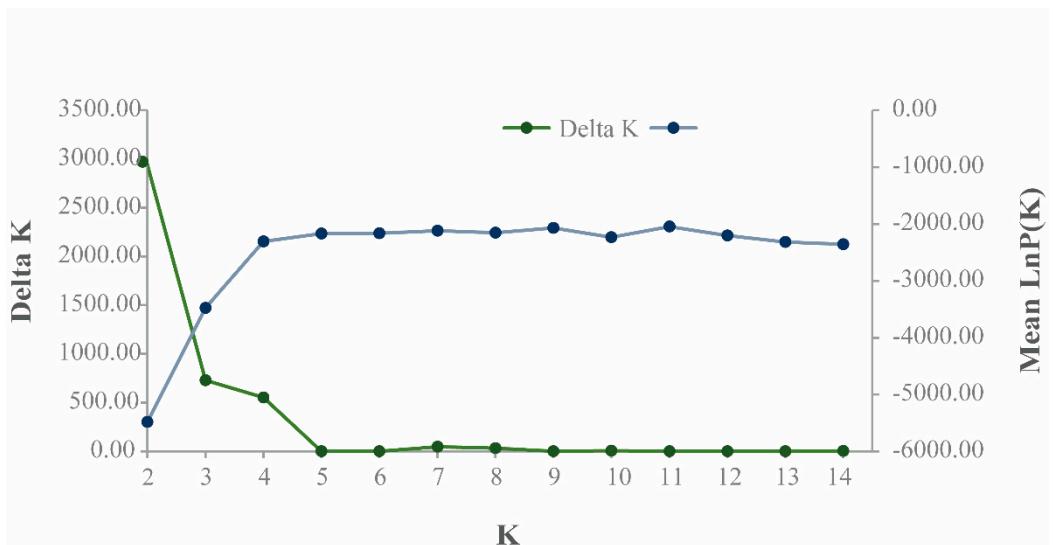


Figure S9: The number of groups K was detected using the delta K values and mean LnP(K) (mean log-likelihood values) by STRUCTURE for six *Lasiodiplodia* species based on DNA sequence data.