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**Figure 5.2** PCR amplification of ITS1-5.8S-ITS2 region from *V.enalia* isolated from Malaysia, Taiwan, Hong Kong, Philippines and Singapore. Representation of isolates showing amplification of the entire ITS1-5.8S-ITS2 region. The PCR products had a molecular weight of 500-550 bp. A) ISB0658 B) ISB0657 C) ISB1350 D) ISB1350 E) ISB5059 F) ISB5059 G) ISB0201 H) ISB0301 I) ISB3532 J) ISB3533 K) ISB5059 L) ISB1350 M) ISB0361 N) ISB0362 O) ISB2952 P) ISB2953. 108

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tree length = 178, a consistency index (C.I.) = 1.000, a retention Index (R.I.) = 1.000 and rescaled consistency index (R.C.) = 1.0000 Two clades were resulted; the first clade consisted of 13 isolates (ISB2954, ISB2953, ISB2952, ISB0362, ISB0361, ISB5059, ISB1350, ISB3533, ISB3532, ISB1349, ISB0301, ISB0201 and GQ203796) with a moderate bootstrap support and the second clade consisted only 2 isolates (ISB0658 and ISB0657) with a weak bootstrap support. The pairwise matrix (Table 4.2) shows the sequences within both clades are identical, while sequences between the clades differ only for less than 1%.

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## List of Abbreviations and Symbols

UV- ultraviolet  
EDTA- ethylene diamine tetra-acetic acid  
DCA- detrended correspondence analysis  
‰- part per thousand  
MA- million years ago  
ITS- internal transcribed spacer  
rDNA- recombinant deoxyribonucleic acid  
IWP- Indo West-Pacific  
ISEA- Island South East Asia  
Ha- hectares  
DIC- differential interference contrast  
CMA/SW- cornmeal agar/seawater  
rRNA- recombinant nucleic acid  
LSU- large subunit ribosomal  
CO1- cytochrome c oxidase subunit 1  
ng- nano gram  
µM- micro molar  
mM- mili molar  
L- litre  
g- gram  
dNTP- Deoxyribonucleotide triphosphate  
PCR- polymerase chain reaction  
w/v- weight/volume  
bp.- base pair  
OD- optical density  
NCBI- National Centre for Biotechnology Information