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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

$^{o}/_{oo}$ – 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