CHAPTER IV

RESULTS

4.1 Plant sample collection

4.1.1 Collection of Aeschynanthus cultivars from Jatujak market.

Some cultivated samples of *Aeschynanthus* were obtained from a plant-selling area of Jatujak flee market, Bangkok, on March 13th, 2003. Only one from about 30 shops was selling *Aeschynanthus* at that time. This shop had six *Aeschynanthus* cultivars which were different in morphology from each other, such as in their leaf characters and stem colour. The plants were named as *Aeschynanthus* sp. JJ_001 to *A*. sp. JJ_006 and then were photographed digitally, except *A*. sp. JJ_006 which died very soon after brought to the glass house. Moreover, as *A*. sp. JJ_001 had strange and interesting pinkish petal colour (discuss more in details in Chapter 5), a herbarium specimen of this plant was prepared and sent to Mary Mendum of Royal Botanic Garden Edinburgh, UK, to check whether *A*. sp. JJ_001 was actually a new species. Photos of the five cultivars *Aeschynanthus* from Jatujak market (*A*. sp. JJ_001-JJ_005) were shown respectively in Fig. 8, 9, 10, 11 and 12.

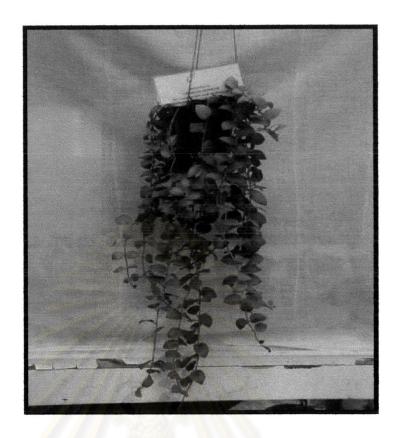


Fig. 8 Morphological characteristics of Aeschynanthus sp. JJ _001.

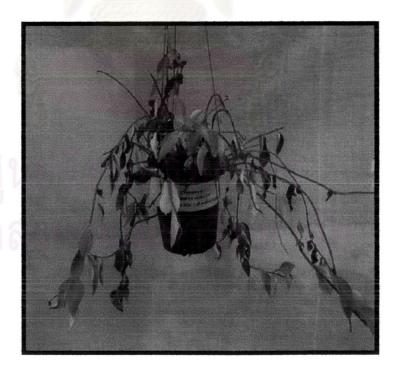


Fig. 9 Morphological characteristics of Aeschynanthus sp. JJ_002.



Fig. 10 Morphological characteristics of Aeschynanthus sp. JJ_003.

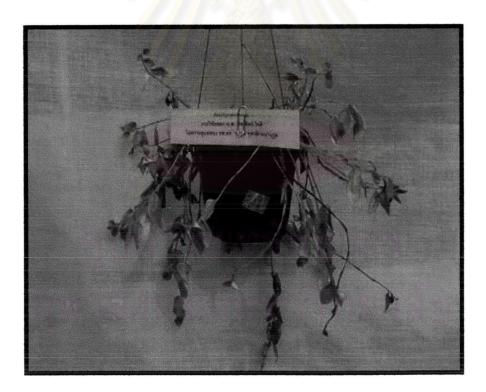


Fig. 11 Morphological characteristics of Aeschynanthus sp. JJ_004.



Fig. 12 Morphological characteristics of Aeschynanthus. sp. JJ_ 005.

4.1.2 Expedition in Chiangmai to collect wild Aeschynanthus samples.

The first expedition set off on December 19th-20th, 2003 to visit San-ku and Doi Pui areas of Sutep Mountains. These two areas were 600 and 800 metres above sea level, respectively. At San-ku area, many flowering *Aeschynanthus* were found along side the trail. Although this location was difficult to survey with limited walk-ways, the plants were easily recognised with their red colour flowers hanging from the tree trunks (Fig. 13). Majority of the large trees in San-Ku were in the family Palionaceae and most *Aeschynanthus* were found on these tree as high as 8-10 metres above the ground.

These Aeschynanthus specimens collected in San-Ku were identified as of A. hildebrandii.

Another field-work location of the first expedition was Doi Pui, this location was easier to survey than San-Ku as most plants were growing along the road. Various kinds and sizes of trees were recognised here. *Aeschynanthus* was common in this place (Fig.14). Many *Aeschynanthus* flowers were found falling on the ground and then were collected to keep in 70% ethanol. Although majority of large trees in this areas were both pines and Palionaceae, no *Aeschynanthus* was seen growing on pines

The second expedition to San-Ku and Doi Pui areas in Chiangmai province took place on June 5th – 12th, 2004. The survey date was not in the flowering season of *Aeschynanthus* and then gave difficulty on distinguishing the plant out of other vegetatives in the forest. In additionally, Doi Inthanon National Park in Sutep Mountains was also visited in this second expedition. Doi Inthanon is the highest mountain in Thailand and much higher than San-Ku and Doi Pui with an attitude over 2,500 metres above sea level. Most of *Aeschynanthus* were found on trunks of large trees along the road going up to the top of the mountain (Fig. 15). The weather on the top of Doi Inthanon was very cold, humid, and lightly raining. An expedition in this forest followed a man-made walking trail of the national park. Many *Aeschynanthus* were found on various kinds of trees along the trail (Fig. 16). These plants were supposed to be *A. macranthus* with their unique large-leaf characteristics. Several other plants which looked like

Aeschynanthus in both habit and morphology were also found in this area. Sample collection was prohibited by regulations of the national park. None of Aeschynanthus found in either San-Ku and Doi Pui or Doi Inthanon was flowering and only their vegetative parts were photographed in the second expedition.



Fig. 13 The habitat of wild Aeschynanthus at San-Ku area on winter season. The plants were flowering and some of them had already been pollinated, turning to capsule-like fruits. The orange arrow indicates an Aeschynanthus flower.



Fig. 14 The habitat of wild Aeschynanthus at Doi-Pui on winter season. Capsule-like fruits of Aeschynanthus were also observed in this area. The orange arrow shows an Aeschynanthus flower.



Fig. 15 The habitat of wild Aeschynanthus at Doi-Pui on rainy season. The plants were not flowering on that time. The orange arrow indicates one Aeschynanthus plant growing on a tree trunk.

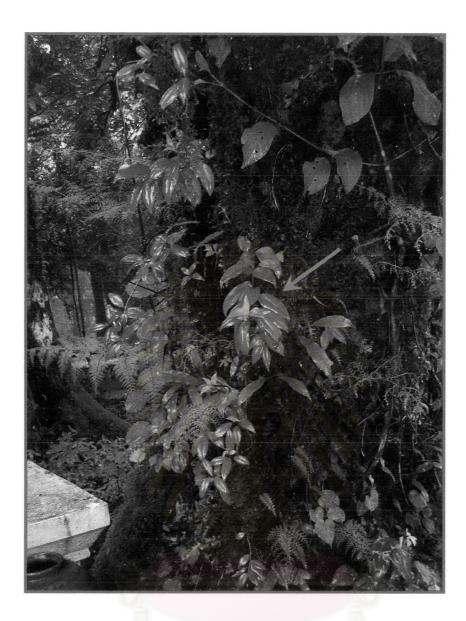


Fig. 16 The habitat of wild Aeschynanthus at Doi Inthanon National Park on rainy season. These plants did not have flowers. The orange arrow shows an Aeschynanthus which is supposed to be A. macranthus settling on the tree trunk.

4.2 DNA extraction

Total genomic DNA of 45 Aeschynanthus smples was extracted from either fresh or dry leaf specimens of individual. The extracted genomic DNA was dissolved in 100 ul of AE buffer of QIAGEN DNA minikit. An amount of each extracted DNA was estimated by agarose gel electrophoresis compared with the M23 1.5 kb + 100 bp DNA ladder marker and the estimated DNA concentration was mostly suitable for subsequent PCR experiments. All of Aeschynanthus samples gave high enough quality and quantity of yielded genomic DNA as shown in Fig. 18, 19, and 20. However, the DNA of A. superbus was not able to yield any genomic band product, though reextracted with either the QIAGEN DNA minikit or any other DNA extraction kit. Note that, although smear DNA bands caused by DNA fragmentation along extraction occurred in some samples, no PCR amplification problem was later found. Moreover, the genomic DNA band of A. sp. CM_034 could not be observed with gel electrophoresis, the DNA gave nicely PCR amplified products.

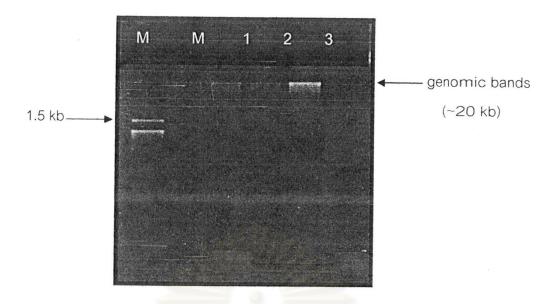


Fig. 17 Genomic DNA bands of some *Aeschynanthus* samples provided by RBGE compared with 1.5 kb + 100 bp DNA marker.

M = 1.5 kb + 100 bp DNA marker 2 = A. fulgen 4 = A. hookeri 1 = A. fecandus 3 = A. garrettii

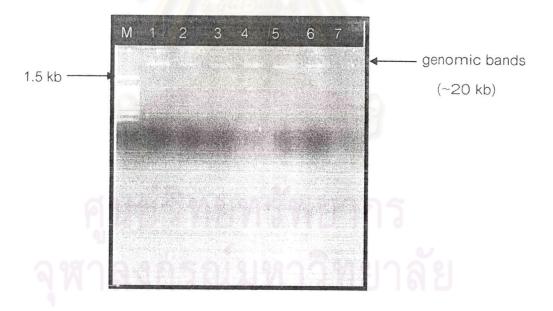


Fig. 18 Genomic DNA bands of *Aeschynanthus* samples collected from Chiangmai province compared with 1.5 kb + 100 bp DNA marker.

M = 1.5 kb + 100 bp DNA marker

 $4 = A. \text{ sp. CM}_022$

 $6 = A. \text{ sp. CM}_030$

1= A. sp. CM_007

 $3 = A. \text{ sp. CM}_013$

 $7 = A. \text{ sp. CM}_034$

 $2 = A. \text{ sp. CM}_{-009}$

 $5 = A. \text{ sp. CM}_026$

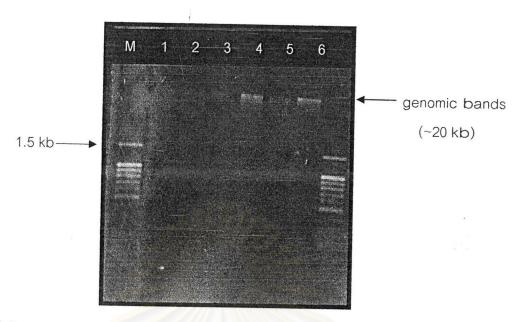


Fig. 19 Genomic DNA bands of *Aeschynanthus* samples collected from Jatujak market compared with 1.5 kb + 100 bp DNA marker.

$$M = 1.5 \text{ kb} + 100 \text{ bp DNA marker}$$
 $3 = A. \text{ sp.JJ}_003$ $6 = A. \text{ sp. JJ}_006$ $1 = A. \text{ sp. JJ}_001$ $4 = A. \text{ sp.JJ}_004$ $2 = A. \text{ sp. JJ}_002$ $5 = A. \text{ sp. JJ}_005$

4.3 PCR amplification of ITS regions

To amplify both ITS1 and ITS2 regions included 5.8S subunit all together, the 5P primer was used as a forward primer and the 8P primer as a reverse primer. The size of PCR products was around 800 bp compared to standard marker. Non-specific band was not found from all amplification. There was only one *Aeschynanthus* not successfully amplified *A. superbus*. Other remaining species were amplifiable and did not have to adjust the annealing temperature. Primer dimers were not found from all samples and the control reactions except *Aeschynanthus* bought from Jatujak market.

The approximated sizes of PCR products of ITS regions are about 800 bp as shown in Fig. 21, 22, and 23.

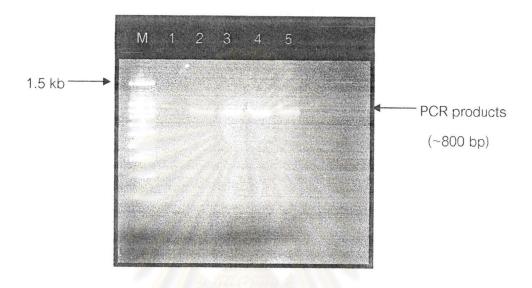


Fig. 20 PCR products of ITS regions of some *Aeschynanthus* samples (provided by RBGE) compared with 1.5 kb + 100 bp DNA marker.

M = 1.5 kb + 100 bp DNA marker	3 = A. flugen
1 = negative control	4 = A. garrettii
2 = A. fecandus	5. = A. hookeri

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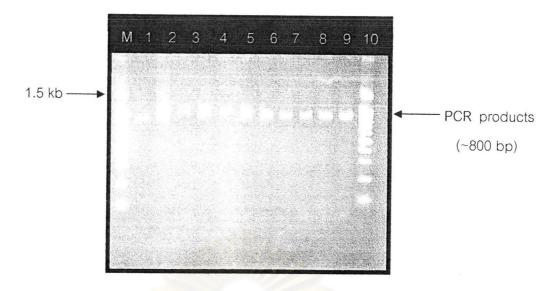


Fig. 21 PCR products of ITS regions of *Aeschynanthus* samples collected from Chiangmai province compared with 1.5 kb + 100 bp DNA marker.

 M = 1.5 kb + 100 bp DNA marker
 4 = A. sp. CM_013
 8 = A. sp. CM_026

 1 = A. sp. CM_007
 5 = A. sp. CM_022
 9 = A. sp. CM_030

 2 = A. sp. CM_007
 6 = A. sp. CM_022
 10 = A. sp. CM_034

 3 = A. sp. CM_013
 7 = A. sp. CM_026
 11 = A. sp. CM_034

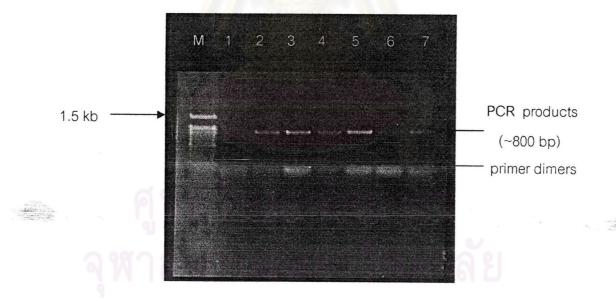


Fig. 22 PCR products of ITS regions of *Aeschynanthus* samples collected from Jatujak market compared with 1.5 kb + 100 bp DNA marker.

M = 1.5 kb + 100 bp DNA marker $3 = A. \text{ sp. JJ}_002$ $6 = A. \text{ sp. JJ}_005$

1 = negative control 4 = A. sp. JJ_003 7 = A. sp. JJ_006

2 = A. sp. JJ_001 5 = A. sp. JJ_004

4.4 PCR product purification and DNA sequencing

After the ITS regions of each Aeschynanthus species was amplified with suitable primers, the PCR products were cleaned up before DNA sequencing. In this study QIAquick PCR purification kit was used to purify the DNA products. Although, the DNA concentration might have been decreased a little bit after purifed, the DNA concentration was enough for sequencing. Each PCR product was sequenced 4 times with primer 5P, and 1P in the forward direction and with primers 4P and 8P in the reverse direction. After DNA sequencing was performed, Chromas computer program was used to compare each couple of the complementary sequences. Sequencing experiments were redone several times for some species and base-by-base comparison could help getting an accurate data. All of Thai Aeschynanthus gave clear ITS sequences without contaminated sequence signals from other plant samples or primer-dimers (Fig. 24) except A. parviflorus which had some intraindividual sequence polymorphism (Fig. 25). All DNA sequences were converted to FASTA format before further analysed with Clustal X alignment program. Not that, sequence retrived from leaf material which same species either identical accession number or not same accession number with the previous study (Denduangboripant et al., 2001) were used to compared in this study.

Complete sequences of the whole ITS regions were successfully generated from leaf materials of almost all 32 *Aeschynanthus* samples supplied by RBGE. The boundaries of ITS1 and ITS2 and adjacent-coding regions were determined by

comparing to published *Aeschynanthus* ITS sequences retrieved from GenBank. The lengths of ITS sequences from these 32 taxa varied from 634 to 665 bp. The lengths of ITS1 regions of these *Aeschynanthus* ranged from 222 bp to 233 bp and the 5.8s rDNA of all samples was 156 bp in length while the lengths of ITS2 was 240 to 259 bp. For *Aeschynanthus* specimens bought from Jatujak market and those collecting from Chiangmai province, the sequences lengths and the boundaries of ITS regions were similar to other *Aeschynanthus* from the previous study (Denduangboripant *et al.*, 2001). Almost all ITS sequences were clear except those of *Aeschynanthus* sp.JJ_005 which had intra-individual sequence polymorphism and then gave only a short readable sequence. All of the sequences were compared to Genbank nucleotide database to identify the species name.



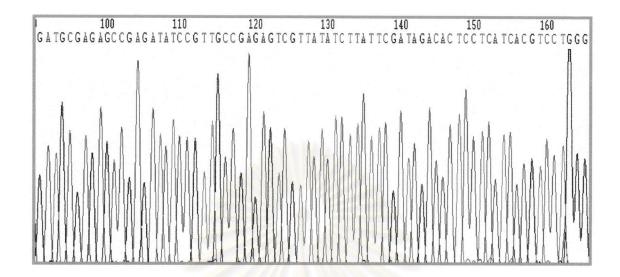


Fig. 23 Four-coloured electropherogram of ITS sequence of *A. javanicus* (clear sequence) with blue peaks represent Cytocine (C), red Thymine (T), green Adenine (A) and cyan Guanine (G) nucleotides.

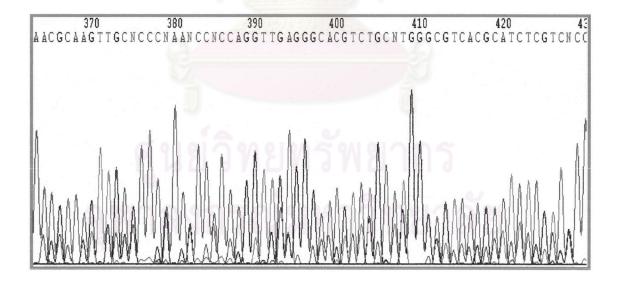


Fig. 24 Four-coloured electropherogram of ITS sequence of *A. parviflorus* (some intra individual sequence polymorphism) with blue peaks represent Cytocine (C), red Thymine (T), green Adenine (A) and cyan Guanine (G) nucleotides.

4.5 DNA data matrix preparation

After converting DNA sequences to FASTA format, Clustal X computer program was used to align the FASTA file. Three types of sequence data matrices were prepared (1) an ITS data matrix of all *Aeschynanthus* samples supplied from RBGE, aligned with all previously studied *Aeschynanthus* ITS sequence (Fig. 26) (2) an ITS data matrix of all *Aeschynanthus* samples brought from Jatujuk market, aligned with all previously studied *Aeschynanthus* ITS sequences (Fig. 27) (3) an ITS data matrix of some *Aeschynanthus* collected in Chiangmai, aligned with all Thai *Aeschynanthus* ITS sequences (Fig. 28). The lengths of these character-taxon matrices were 665 bp, 571 bp and 531 bp, respectively. The three ITS data matrices were then transformed to NEXUS file format for further phylogenetic tree reconstruction.





Fig. 25 A 572 bp character-taxon matrix of 80 *Aeschynanthus* taxa based on ITS sequences. Gap symbol (-) indicates insertion or deletion at the site. ? symbol shows missing nucleotide data. Asterisks * represent excluded sites from analyses.

			90	100	110	120	130	140	150	160
~	m bailani									1 1
	yr. baileyi vs. forrestii	TCT	GCGTCCA	AACCAACAT- CCAGCAT-	CACGACC	CTGAC TCGAC	CCCA	AGTGGCGCAA	STCGTT	GCTCGGG-C
	curtisii						CCCA			
	musaensis	TTT	GTGT	CCGGCAT-	CACGACC	TCGAC	CCCCF	AGTGGCGCAA	GTCG	-CTTGGG-A
	javanicus 19971339 aff. javanicus 20010484	TTT	GTGT	CCAGCAT-	CACGACC	TCGAC	CCCA	AGTGGCGCAA	GTCG	-CTTGGG-A
	vinaceus	TTT	GTGT	CCAACAT-	CATGACC	TCTAC	CCCA	AGTGGCGCAA	STCG	-CTTGGG-A
	nummularius	TCT	GTGT	CGAGCAT-	CACGACC	CCGAC	-CCcGAC-CCCA	GGTGGCGCGA	STCT	-CCTGGG-A
	ellipticus	TCT	GTGT	CGAGCAC-	CACGACC	CCGAC	CCCCA	GGTGGCGCGA	GTCT	-CTTGGG-A
	oxychlamys roseoflorus	TTTGTTT-	GTGT	CCAGCAT-	CA	-CGAC	-CTCGACCCCCA	GGTGGCGCAA	GTCG	-CTTGGG-A
	irigaensis 19972532	TTT	GTGT	CCGGCAT-	CACGACC	TCGAC	CCCA	AGTGGCGAAA	GTCG	-CTTGGG-A
	irigaensis 19991999	TTT	GTGT	CCAGCAT-	CACGACC	TCGAC	CCCA	AGTGGCGAAA	GTCT	-CTTGGG-A
	philippinensis	TTT	GTGT	CCAGCAT-	CAcGACC	TCGAC	CCCA	AGCGGCGCGAG	TGG	-CTTGGG-A
	obconicus sp. 001	TTT	GTGT	-CCArCAT-	CACGACC	TCGAC	CCCA	AGTGGCGCAAG	TCG	-CTTGGG-A
	rhododendron	TTT	GTGT	-CCAGCAT-	CACGACC	TCGAC	CCCA	AGTGGCGCAA(STCG	-CTTGGG-A
	sp. 0025 123	TTT	GTGT	-CCAGCAT-	CACGACC	TCGAC	CCCA	AGTGGCGCAA	TCG	-CTTGGG-A
	sp. 20002051	TTT	GTGT	-CCAGCAT-	CACGACC	TCGAC	CCCA	AGTGGCGCAAC	TCG	-CTTGGG-A
	sp. 00293	TTT	GTGT	-CCAGCAT-	CAGGACC	TCGAC	TCCA	AGTGGCGCAAG	GTCG	-CTTGGG-A
	sp. 20000557A tricolor	TTT	GTGT	-CCAGCAT-	CACGACC	TCGAC	CCCA	AGTGGCGCAAC	STCG	-CTTGGG-T
	tricolorxparvifolius	TTT	GTGT	-CCAGCAT-	CACGACC	CGAC	CCCA	AGTGGCGCAAC	TCG	-CTTGGG-A
	burttii 20000562	TTT	GTGT	-CCAGCAT-	CAGGACC	ICGAC	TCCA	AGTGGCGCAA	TCG	-CTTGGG-A
	burttii 20000536	TTw	GTGT	-CCAGCAT-	CAGGACC	TCGAC	TCCA	AGTGGCGCAAG	TCG	-CTTGGG-A
	arctocalyx	TTT	GTGT	-CCAGCAT-	CACGGCC	rcgac	CCCA	AGTGGCGCAAG	TCG	-CTTGGG-A
	chrysanthus parvifolius 19881451	TTT	GTGT	-CCAGCAT-	CACGACCI	CGAC	CCCA	AGTGGCGCAAG	TCG	-CTTGGG-A
	parvifolius 19671069	TCT	GTGT	-CCAGCAT-	CACGACC	CGAC	CCCA	AGTGGCGCAAC	TcG	-CTTgGG-A
	radicans 19622826	TTT	GTGT	-CCAGCAT-	CACGACCI	CGAC	CCCA	AGTGGCGCAAC	TCG	-CTTGGG-A
	radicans 19672224	TTT	GTGT	-CCAGCAT-	CACGACCI	CGAC	CCCA	AGTGGCGCAAG	TCG	-CTTGGG-A
	argentii	TTT	GTGT	-CCAGCAT-	CACAACC	CGAC	CCCA	AGTGGCGCAAC	TCG	-CTTGGG-A
	magnificus malulidii 19980282	TTT	GTGT	-CCAGCAT-	CATGACCT	CTAC	CCCA	AGTGGCGCGAG	TCG	-CTTGGG-A
	malulidii 19980283	TTT	GTGT	-CCAGCAT-	CACGGCCT	CGAC	CCCA	AGTGGCGCAAG	TCG	-CTTGGG-A
	siphonanthus	TTT	GTGT	-CCAGCAT-	CACGGCCT	CGAC	CCCA	AGTGGCGCAAC	TCG	-CTTGGG-A
	aff. siphonanthus	TTT	GTGT	-CCGGCAT-	CACGGCCT	CGAC	CCCA	AGTGGCGCAAG	TCG	-CTTGGG-A
	speciosus	TTT	GTGT	-CCAGCAT-	CACGGCCT	CGAC	CCCCA	AGTGGCGAGAG	TTG	CTTGGG-A
	guttatus pachyanthus	TTT	GTGT	-CCGGCAT-	CACGGCCI	CGAC	CCCG.	AGCGACGCAAG	TCT	CTTGGG-A
	longicaulis 19672218	TTT	GAGT	-CCAGCGT-	CACGGCCT	CGAC	CCCCG	AGCGGCGCAAG	TTC	-CTCGGG-A
	longicaulis 20001430	TTT	GAGT	-CCAGCGT-	CACGGCCI	CGAC	CCCCG	AGTGGCGAGAG	TTG	·CTTGGG-A
	albidus	TTT	GAGT	-CCAGCGT-	CACGGCCT	CGAC	CCCCG	AGTGGCGAGAG	TTG	CTTGGG-A
	sp.nov.20000512 viridiflorus 20000332	TTT	GAGT	-CCAGCGT-	CCCGGCCI	CGAC	CCCCG	AGTGGCGAGAG	TTG	CTTGGG-A
	viridiflorus 20021227	TTT	GAGT	-CCAGCGT-	CCCGGCCT	CGAC	CCCCG.	AGTGGCGAGAG AGTGGCGAGAG	TTG	CTTGGG-A
	fecundus	TTT	GAGT	-CCAGCGT-	CACGGCCT	CGAC	CCCCG	AGTGGCGAGAG	TTG	CTTGGG-A
	fulgens 19900384	TTTTT-	GAGT	-CCAGCAT-	CACGCCCI	CGAC	TACCA	AGTGGCGAGAG	TTG	-CTTGGG-A
	fulgens 20002032	TTTTT-	GAGT	-CCAGCAT-	CACGCCCT	CGAC	TACCA	AGTGGCGAGAG	TTG	CTTGGG-A
	angustifolius fruticosus	TTT	GAGT	CAGCGT-	CACACGGCCT	CGAC	CCCCA	AGTGGCGAGAG	TTG	CTTGGG-A
	buxifolius	TCT	GTGT	-CCAGCGT-	CACGACCI	CGACCCC	CCCCCA	AGTGGCGAGAG AGTGGCGCGAG	TTG	CTTGGG-A
	ceylanicus	TTT	GAGT	-CCAGCAT-	CACGGCCC	CGACCCC	CGTCCCCCCA	AGTGGCGTGAG	TTG	CTTGGG-A
	bracteatus	TTTG	ATGAGT	-CCAGCAT-	CACGGCCT	CGAC	CCCG	AGTGGCGCGAG	TTG	CTTGGG-A
	humilis hildebrandii AY047040	TTTTT-	GAGT	-CTAGCAT-	CACGGCCT	CGAC	CCCCCA	AGTGGCGCGAG	TTT	CTTGGG-A
	hildebrandii 19991628	TTTTT-	GTGT	-CCACCAT-	CACGGCTT	CGACCCC	CA	AGTGGCGCGAG AGTGGCGTGAG	TTG	CTTGGG-A
	gracilis 19802575	TTTTT-	GAGT	-CCAGCATT	CACGGCCT	CGAC	CTCCCA	AG	TTG	CTTGGG-A
	gracilis 19821970	TTTTT-	GAGT	-CCAGCATT-	CACGGCCT	CGAC	CTCCCA	AG	TTG	CTTGGG-A
	hosseusii	TTTTT-	GAGT	-CCAGCAT-	CACGGCCT	'CGAC	TCCCA	AGTGGCGCGAG	TTG	CTTGGG-A
	hookeri macranthus	CTTTT-	GAGT	-CCAGCAT-	CACGGCCT	CCAC	TCCCA	AGTGGCGCGAG	TTG	CTTGGG-A
	parviflorus 19671067	TTTTT-	GAGT	-CCAGCAT-	CACGGCCT	CGAC	TCCCA	AGTGGCGAGAG AGTGGCGCGAGAG	TTG	CTTGGG-A
	aff. parviflorus 19672220	TTTTT-	GAGT	-CCAGCAT-	CACGGCCT	CGAC	TCCCA	AGTGGCGCGAG	TTG	CTTGGG-A
	mimetes	TTTTT-	GAGT	-CCAGCAT-	CACGCCCT	CGAC	TACCA	AGTGGCGAGAG	TTG	CTTGGG-A
	sikkimensis arfakensis	TTTTT-	GAGT	-CCAGCAT	CACGGCCT	CGAC	TCCCA	AGTGGCGCGAG	TTG	CTTGGG-A
	austroyunnanensis	TTCCT-	ATGAGT	-CCAGCAT	CACGGGCT	CGAC	CCCCA	AGTGGCGAGAG	TTG	CTTGGG-A
	lineatus 19970613	TTTTT-	GAGT	-CCAGCAT-	CACGGCCC	CGAC	TCCCA	AGTGGCGCGAG	TTG	CTTGGG-A
	lineatus 19991622	TTTTT	GAGT	-CCAGCAT	CACGGCCC	CGAC	TCCCA	AGTGGCGCGAG	TTG	CTTGGG-A
	pachytrichus	TTTTT	GAGT	-CCAGCAT	CACGGCCT	CGAC	TCCCAA	AGTGGCGCGAG	TTG	CTTGGG-A
	pseudohybridus	TTT	GAGT	CAGCAT-	CACACGGCCT	CGAC	CCCCA	AGTGGCGAGAG	TTG	CTTGGG-A
	batakiorum garrettii	TCTG/	AIGAGT	-CCAGCGT	CACGGCCT	CGACCCCC	CCCCGA	AGTGGCGAGAG	TTG	CTTGGG-A
	acuminatus 19991496	TTT	GAGT	-CGAGCAT	CACGGCCT	CGAA	CCCCGA	AGTGGCGCGAG	TTG	CTTGGGGA
	acuminatus 19991444	TTT	GAGT	-CGAGCAT	CACGGCCT	CGAA	CCCCA	AGTGGCGCGAG	TTG	CTTGGG-A
	myrmecophilus	TTT	GAGT	-CyAGCrT	CACGGCCT	CGAC	CCCCGA	AGTGGCGAGAG	TTG	CTTGGG-A
	sp. 00171	TTT	GAGT	-CCAGCGT	CCCGGCCT	CGAC	CCCCGA	AGTGGCGAGAG	rtg	CTTGGG-A
	viridiflorus 20000228 andersonii	TTT	GAGT	-CCAGCGT	CACGGCCT	CGAC	CCCCGA	AGTGGCGAGAG	TTG	CTTGGG-A
		11	0/101	CIMOCKI	CACGGCC I	OUNCELLE	CCCCAF	AG I GGCGCGAG	111	C11666-A

Fig. 25 (continued)

		170 180 190 200 210 220 230 240
_		
	r. baileyi	GTGCTAACAACCTCTCGGCGGGCAAGCGCCAAGGAAAATCATATCGAACGCCTCTCCGTCACGGTGCCG-TG
	rs. forrestii curtisii	GTGCTAACCACTCGGCGGGAAAGCGCCAAGGAAAACCATACCGAACGCCTCTCCGTCCTGGTGCCG-TG
	musaensis	GTACTAAACTCTCGGCGGGGCAAGCGCCAAGGAAAACCGTAYTGAACACCTCTCCGTCTCTGTGCTA
	javanicus 19971339	GTACTAACCTCTCGGGGGGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCTGTCTTGGTGCTG
	aff. javanicus 20010484	GTACTAAACTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATbGAACACCTCTCCGTCTCGGTGCTA GTACTAAACTCTCGGCGGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTA
	vinaceus	GTACTAAACTCTCGGCGCGGTAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTG
	nummularius	GTACTAACCTCACGGCGCGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTG
A.		GT-TACTAACCTCTCGGCGCGAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTG
A.	oxychlamys	GTACTAACCACTCGGCGGCAAGCGCCAAGGAAAACTGCATCGAACACCTCTCCGTCTTGGTGCTG
A.	roseoflorus	GTACTAACCTCTCGGCGGGCAAGCGCCAAGGAAAACCGTATCGAACACCTCtCCGTCTTGGTGCTG
A.	irigaensis 19972532	GTTCTAACCTCTGGGCGCGGCAAGCGCCAAGGAAAaCCATATTGAACACCTCTCCGTCTTGGTGCTGTTG
A.	irigaensis 19991999	GTTCTAACCTCTGGGCGCGGCAAGCGCCAAGGAAAACCATATTGAACACCTCTCCGTCTTGGTGCTGTTG
A.	philippinensis	GTACTAACCTCTCGGCGCGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCCCGGTGCTG
	obconicus	GTACTAAACTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATLGAACACCTCTCCGTCTCGGTGCTA
	sp. 001	GTACTAAaCTCTCGGcGCGGCAaGCGCCAaGGAAAACCATATCGAACACCTCTCCGTCTCGGTGCTA
	rhododendron	GTACTAACCTCTCGGCGCGCAAGCGCCAAGGAAAACCATACTGAACATCTCTCCGTCTTGGTGCTG
	sp. 0025_123	GTACTAAACTCTCGGCGCGGCaAGCGCCAAGGAAAACCATATCGAACACCTCTCCGTCTCGGTGCTA
	sp. 20002051	GTACTAAACTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTA
	sp. 00293	GTACTAACCTCTCGGCGGCGAAGCGCCAAGGAAAACCGTATTGAACACmTCTCCGTCCCGGTGCTG
	sp. 20000557A	GTACTAAACTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTA
	tricolor	GTACTAAACTCTCGGCGCGGCAAGCGCCAAGGAAATCCGTATTGAACACCTCTCCGTCTCGGTGCTA
	tricolorxparvifolius	GTACTAAACTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTA
	burttii 20000562	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGTCCCGGTGCTG
	burttii 20000536	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGTCTCGGTGCTG
	arctocalyx chrysanthus	GTACTAAACTCTCGGCGGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGTCTCGGTGCTA
	parvifolius 19881451	GTACTAAACTCTCGGCGGGCAAGCGCCAAGGAAAATCGTATAGAACACCTCTCCGTCTCGGTGCTA
	parvifolius 19671069	GTACTAAACTCTCGGCGCGGCAAGCGCAAGGAAAACCGTATCGAACACCTCtCCGTCTCGGTGCTA
	radicans 19622826	GTACTAAACTCTCGGCGCGGCAAGGCCCAAGGAAAACCGTATCGAACACCTCtCCGTCTCGGTGCTA GTACTAAACTCTCGGCGCGCAAGGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTA
	radicans 19672224	GTACTAAACTCTCGGCGCGAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTCGGTGCTA
	argentii	GTACTAAACTCTCGGCGCGCAAGCGCCAAGGAAAACCTTATCGAACACCTCTCCGTCTCGGTGCTG
	magnificus	GTACTAAACTCTCGGCGCGTAAGCGCCAAGGAAAACCATATTGAACACCTCTCTGTCTCGGTGCTG
	malulidii 19980282	GTACTAAACTCTCGGCGGCGAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGTCTCGGTGCTA
	malulidii 19980283	GTACTAAACTCTCGGCGCGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGTTCTCGGTGCTA
	siphonanthus	GTACTAAACTCTCGGCGCGCCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGTCTCGGTGCTA
A.	aff. siphonanthus	GTACTAAACTCTCGGCGCGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGTCTCGGTGCTA
	speciosus	GTACTAACCTCTCGGCGCGCCAAGCGCCAAGGAAAACCATATTGAACACCTCTCCGCTCCGGTGCTG
A.	guttatus	GTACTAACCTCTCGGCGCGGCAAGAGCCAAGGAAAACCGTATCGAACACCTCTCCGTCTTGGTGTTG
A.	pachyanthus	GTACTAACCTCTCGGCGCGCAAGCACCAAGGAAAACCTTATCGAACACCTCTCCGTCTTGGTGCTGCTG
A.	longicaulis 19672218	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
A.	longicaulis 20001430	GTACTAACCTCTCGGCGCGCCAAGCCCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
	albidus	GTACTAACCTCTCGGCGGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
	sp.nov.20000512	GTACTAACCTCTCGGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
	viridiflorus 20000332	GTACTAACCTCTCGGCGCGAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
	viridiflorus 20021227	GTACTAACCTCTCGGCGCGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
	fecundus	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTGCGGCCTGCTGCTGG
	fulgens 19900384	GTACTACTAACCTCTCGGCGCGGCAAGTGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCTG
	fulgens 20002032	GTACTACTAACCTCTCGGCGCGGCAAGTGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCTG
	angustifolius fruticosus	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATTGAACGCCTCTCCGCTCTGGTGCTG
	buxifolius	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGCTCCGGTGCTG
	ceylanicus	GGGAGTACTAACCTCTCGGCGGGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGGCCTGGTGCTG
	bracteatus	GTACTAACCTCTCGGCGCGCGAGTGCCAAGGAAAACCGTATTGAACACCTCTCCGGCCTGGTGCTGGTACTAACCACTCGGCGCGCAAGGCGCAAGGAAAACCTTATTGAACACCTCTCCGGCCTGGTGCTG
	humilis	GTACTAACCTCTGGGCGCGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGGCCTGGTGCTG
	hildebrandii AY047040	GTACTAACATCTGGGCGCGGCAAGCGCCAAGGAAAACCGT-TTGAACACCTCTCCGGCCTGGTGCTG
A.	hildebrandii 19991628	GCACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGTACACCTCTCCGGCCTGGTGCTG
	gracilis 19802575	GTACTAAACTCTCGGCGCGCAAGCGCCAAGGAAAACGTTACTGAACACCTCTCCGGCCTGGTGCTG
A.	gracilis 19821970	GTACTAAACTCTCGGCGGCGCAAGCGCCAAGGAAAACGTTACTGAACACCTCTCCGGCCTGGTGCTG
A.	hosseusii	GTACTACTACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCTG
A.	hookeri	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACTGTATTGAACACCTCTCCGGCCTGGTGCTG
	macranthus	GTACTACTAACCTCTCGGCGCGCAAGCACCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCTG
	parviflorus 19671067	GTACTACTAACCTCTCGGCGCGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGCCCGGTGCTG
A.	aff. parviflorus 19672220	GTACTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCTG
A.	mimetes	GTACTACTAACCTCTCGGCGGCAAGTGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCTG
	sikkimensis	GTACTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCTG
	arfakensis	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAAYCGTATYGAACACCTCTCCGCTCCG
	austroyunnanensis	GTACCACTAACCTCTCGGCGGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCTGGTGCTG
	lineatus 19970613	GTACTACTAACCTCTCGGCGCGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGTTG
	lineatus 19991622	GTACTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGTTG
	pachytrichus	GTACCACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTCCGGCCCGGTGCCG
	pseudohybridus	GTACTAACCTCTGGGCGCGGCAAGCGCCAAGGAAAACCGTATTGAACGCCTCTCCGCTCTGGTGCTG
	batakiorum	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
	garrettii	GTACTAACCTCTCGGCGCGCAAGCGCCAAGGAAAACCGTATCGAACACCTCTCCGGCCTGGTGCTG
	acuminatus 19991496	GTACTAACCTCTCGGCGGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGGCCTGGTGCTG
	acuminatus 19991444 myrmecophilus	GTACTAACCTCTCGGCGGGCAAGCGCCAAGGAAAACCGTATTGAACACCTCTCCGGCCTGGTGCTG
	sp. 00171	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTTGCGGCCTGGTGCTGG
	viridiflorus 20000228	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
	andersonii	GTACTAACCTCTCGGCGCGGCAAGCGCCAAGGAAAACCGTACTGAACACCTCTGCGGCCTGGTGCTGG
a.	audef80011	GTactaacctctgggcgcggcaagcgccaaggaaaaccgtattgaacacctctccggccttggtgctg

Fig. 25 (continued)

		250 260 270 280 290 300 310 320
(Cyr. baileyi	
	Lys. forrestii	
	. curtisii	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTDTCAATA-ACTC-GTCTCTCGCC-CCCCTCAACACATC-C
	. musaensis	
	1. javanicus 19971339	
Ä	. aff. javanicus 20010484	
	. nummularius	
	. ellipticus	
A	. oxychlamys	TGCGGTACCC-GGGACGTGACGAGGAGTG-TCTATTGAAT-AGAT-ACTCTC TGCGGTACCC-AGGACGCGACGAGGAGTG-TCTATTGAAT-AGATATTATCTCC TGCGGTACCC-AGGACGCGACGAGGAGTG-TCTATTGAAT-AGATATTATCTCCTCCCCCCCCCC
	. roseoflorus	
	. irigaensis 19972532	
	. irigaensis 19991999 . philippinensis	
	. obconicus	
	. sp. 001	
	. rhododendron	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAGTA-AGATATCTGTCGC-CCCATCCGCCAA-TGTYTT TGCGGTACCC-AGGATGTGATGAGGAATCTATTTAATAGATATCTGTCGCC-CCCCTCCGCGAA-TATCT TGCGGTACCC-AGGACGTGATGAGGAATCTATTTAATAGATATCTGTCGCC-CCCCTCCGCAGA-TATCTT
	. sp. 0025_123	
	. sp. 20002051	
	. sp. 00293	
	. sp. 20000557A . tricolor	
	tricolorxparvifolius	
A.	burttii 20000562	
	. burttii 20000536	
	arctocalyx	
	chrysanthus	TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTGTGGCC-CCCTCCCCGAA-TGTCTT TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATGGAATA-AGATATCTGTCGCC-CCCCTCCGCGAA-TGTCTT TGCGCTACCC-AGGACGTGATGAGGAGTG-TCTATGGAATA-AGATATCTCGTCGCC-CCACTCCGCCAA-TGTCTT
A.	parvifolius 19881451	
Α.	parvifolius 19671069	
	radicans 19622826	
	radicans 19672224 argentii	
	magnificus	
	malulidii 19980282	
	malulidii 19980283	
	siphonanthus	TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCACGAA-TGTCTT TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCACGAA-TGTCTT TGTGGTACCC-AGGACGTGATCACCACTC
	aff. siphonanthus	
	speciosus	
	guttatus	
	pachyanthus longicaulis 19672218	
A.	longicaulis 20001430	
A.	albidus	
	sp.nov.20000512	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAAT-AGAT-ATCTCGGCGTC-TCCCTCCCTATG-TATCTC TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAAT-AGAT-ATCTCGGCGTC-TCCCTCCCTATG-TATCTC TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAAT-AGAT-ATCTCGGCGTC-TCCCTCCCTATA-TATCTC TGCAGTACCC-AGGACGTGATGAGGACTG-TCTATTGATGAT-AGAT-A
Α.	viridiflorus 20000332	
Α.	viridiflorus 20021227	
	fecundus fulgens 19900384	
A.	fulgens 20002032	
A.	angustifolius	
A.	fruticosus	
A.	buxifolius	TGCAGTACCCAAGAACGTGATGAGGAATG-TCTATCGAATAGATATCTCGTCGTC-CCCCTCCCCAAA-TATCTC TGCGGCACCC-AGGACGGGACGAGGAGTG-TCTATCGAATAGATAT-ATCTCGTCGCCCCCCCCCC
	ceylanicus	
	bracteatus	
	humilis	
	hildebrandii_AY047040 hildebrandii 19991628	
	gracilis 19802575	
	gracilis 19821970	
	hosseusii	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGCAT-AGATAICTGGTGGC-CCCCTCCCGAAA-TATCTC TGCAGCACCC-AGGACGTGATGAGGAGTG-TCTATTGCAT-AGATAICTGGTGGC-CCCCTCCCGAAA-TATCTC TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGCAT TGCAGTACCC-AGGACGTGAGTGAGAGTG-TCTATTGCAT
	hookeri	
	macranthus	
	parviflorus 19671067	
λ.	mimetes	
	sikkimensis	
	arfakensis	
A	austroyunnanensis	
A	lineatus 19970613	TGCAGTACCC-AGGACGTGACGAGGAGTG-TCTATCGAATAGATATCTCGTGGCCCCCCCCCC
	lineatus 19991622	
	pachytrichus	
	eseudohybridus estakiorum	
	Jarrettii	
	cuminatus 19991496	
A. a	cuminatus 19991444	
A. z	yrmecophilus	TGCAGTACCC-AGGACGTGATCAGGGGTC-TCTATTGAAT-AGATAT-ATCTCGTCGCC-CCCCCCAAA-TATCTC
	p. 00171	
A. V	riridiflorus 20000228 Indersonii	
л. а	MUSISONII	TGCAGTACCG-AgGAcGTGATGAGGAGTG-TCTAETGCAE-AGAEAT-ATCCCGTCGCC-CCCCCCAAA-TATCTC

Fig. 25 (continued)

330 350 350 350 350 350 300 300 300 300 400			*********	
Cyr.				400
Formartia	,	See had I and		
A. Busandinis 1971335 A. Javanienus 1971336 CT-CCC-COAC-TOCOTRA-GOTOTO-COGG-ACARTO-CTANCOMAGGGGG-GOGACO-ACARTO-GOGACO-ACARTO-GOGACO-ACARTO-COMENCOMAGGGGGG-ACARTO-CTANCOMAGGGGGG-ACARTO-CTANCOMAGGGGGG-ACARTO-CTANCOMAGGGGGG-ACARTO-CTANCOMAGGGGGG-ACARTO-CTANCOMAGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG			-1CIICC-ACACIAA-GAGTGCCGGGAG-ACGATACATACCAACCACC	TOOCCE
A. aff.javanious 19971339 A. aff.javanious 2010484 A. viinacous GT—TC-CCL—TO—ATTEMENA—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—DURICOR A. viryblismy GT—TC-CCL—TO—ATTEMENA—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—ATTEMENT—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—ATTEMENT —GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—GISTOR—GISTOR—GISTOR—GISTOR—CATACAMAGRIGH—GISTOR—			TOTALCH ACACT TOTALCA A COLOR OF THE COLOR O	DOCOCA
A. visionum 20010484 A. companies in 20010484 A. pivification 20010484			GT-TC-CCATTCAGTCAAA-GTGTTGGGGG-ACGATGCATACCAAGGAGGAGGG	GACGGA
A. P. Numbers			GT-TC-CCTGATTCAGTCA A G-TTC	SACGGA
A. ************************************	A	. aff. javanicus 20010484	GT-TC-CCTGATTCAGTCAAA-GTGTTGGGGGAACATGCATTACCAAGGAGGAGGG	ACGGA
A. oxychiamys	A	. vinaceus	GI-TC-CCTGATTCACTCAAA-GTGTTGGGGG-ACGATGCATATCAACGACGA	*****
A. roseoficial programme			G1-1C-CCCGACTCGGTCAAAGGTGTCGGGGGACGATGCATACCCACCACCA	220002
A. isignamis 1997252 A. p. 001 B. p. 001 A. p. 001 B. p. 001 B. p. 001 B. p. 001 B. p. 002 A. p. 002 B. p. 002 B			AI TO COTTO TO	****
A. irigamenia 19971332 A. irigamenia 19971332 A. philippinensis CT-TC-CC-CC-CC-ATTECRICANA-GORDIC-CORRACA - CATACCARGAGGA-CGCACGACGA A. philippinensis CT-TC-CC-CC-CC-ATTCCATCACCACGACGA-CGCACCGACGACGA-CGCACCGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGA-CGCACGACGACGA-CGCACGACGA-CGCACGACGACGA-CGCACGACGACGA-CGCACGACGACGA-CGCACCGACCACGACCACGACCACACCACCACCACCACCA			GI TC-CCCACCACCACCACCACCACCACCACCACCACCAC	TOCCO
A. philiphemsis A. choonious GT-TC-CC-TCG-ATTACATCANGATCG-COSTACAGGA-COGACGA A. pp. 0015 A. pp. 0025 A			GI-TC-CCCATACCAACTCGGTCAAAGGTGTCGGGGGACGATGCATACCAACCACCA	*****
A. philippinensis A. choonious			GI-TC-CCCGT-AITCAGICAAA-GIGITGGGGG-ACGATGCCTAGGAAGGATGA	TOOGE
A. sp. 001 A. rbhododendron A. photodendron A. ph. 2000251 A. photodendron			GI-IC-CCATTCAGTCAAA-GTGTTGGGGG-ACGATGCATACCAACCATCACCC	TOCOT
A. pp. 001 A. ph. 0025 A. ph.			CITTLE CONTRACTOR ATTCAGTCAAA-GTGTCGGGGG-ACGATGCATCATACCAACCACCA	******
A. phodedendrom			GIIU-UUTGATTCAGTCAAA-GTGTTGGGGG-ACrATGCATACCAACCAACCA	
A. sp. 0025 123 A. sp. 0029051 A. sp. 00293 GT-TC-CCTGATTAGTCAMA-TOTTOGGGG-ACATTA-CATGAGAGGA-GGAGGAGAGAGAGAGAGAGAGAGAGAGAGA	-		Q1-1C-CCCATCAGTCAGA-GTGTTGGGGG-ATGATCCATCGCAAGGAGGA	
A. sp. 20009571A A. sp. 20009571A A. tricolory artifolius A. burtti 20000562 A. burtti 20000562 A. burtti 20000563 A. parrifolius 1981461 A			-C-ICCCCTGACTCGGTCAAA-GTGTCGGGGG-ACGATGCATACCAACCA	
A. trisology A. t			GI-IC-CCTGATTCAGTCAAAAGTGTTGGGGG-ATGATGCATACGAACGACGA	70001
A tricolor A tricolorpayrifolius GT-TC-CC-TIC-ATTOANCOUNCETTIC—GGGG-ACATG—COTACCAGGGGGG-AGGACGA A buttii 20000552 A buttii 20000553 GT-TC-CC-CC-CC-ATTAANCONA-TIGHTD—GGGG-ACATG—COTACCAGGGGGG-GGGCGGA A buttii 20000536 A rofocalyx GT-TC-CC-CC-CC-ATTAANCONA-TIGHTD—GGGG-ACATG—COTACCAGGGGGG-GGGCGGA A rofocalyx GT-TC-CC-CC-CC-ATTAANCONA-TIGHTD—GGGG-ACATG—COTACCAGGGGGG-GGGCGGA A rofocalyx GT-TC-CC-CC-TC-ATTCAACAGGGGG-GGGGGGGGGGG			GT-TC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGAGGG	ACGGA
A Duritii 20000556 A. Duritii 20000556 CT-TC-CC. CC-TC-ATTORNIANA-GOTTTC. CGGC-ACCARTG. CGTTACCAAGGAGGA-GGGACGA A. Duritii 20000556 A. Duritii 20000556 CT-TC-CC. CC-ATTORNIANA-GOTTTC. CGGG-ACCARTG. CGTACCAAGGAGGA-GGGACGA A. Duritii 20000556 A. Duritii 2000056 A. Duritii 2000066 A. Duritii 2000066 A.			GT-TC-CCATTACAGTCAMA-TIGTTGGGGG-ACGATGCATACCAAGGAGGAGGG	ACGGA
A. burtti 20000536 A. burtti 20000536 CT-TC-CC CG-ATTARGTCAMA-GCTTC CGGGACGATG-CATACCARGAGGA-GGACGA A. burtti 20000536 A. arotocalyx CT-TC-CC CG-ATTARGTCAMA-TGTTG-CGGGACGATG-CATACCARGAGGAGGAGGACGATG-CATACCARGAGGAGGAGGACGATG-CATACCARGAGGAGGAGGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGA-GGACGAGAATG-CATACCARGAGGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGA			GT-TC-CCTGATCABTCAAA-GTTTCGGGG-ACAATGCGTACCAAGGAGGAGGG	ACGGA
A. burttii 20000552 A. burttii 20000562 A. burttii 20000563 A. arotocalyx GT-TC-CCC - CG-ATTAMATCHAM - TIGHTS - GGGG-ACCANG-COLANG-GOADCOM A. arotocalyx GT-TC-CCC - TG-ATTCAMATCHAM-GHTTTD - GGGG-ACCANG-CATTACCAMAGGGGA-GGGACGAGGA-GGGACGAGGAGAGAGGAGAG			GTTC-CCTGATCAGTCAAA-GTTTGGGGG-ATGATGCATACCGAGGAGGAA-GGG	ACGGA
A. burtii 2000536 A. arotocalyx GT-TC-CC-TC-ATTARICHAR-TIGITC-GGGGGGGATGGGATGGGGGGGGGGGGGGGGGGGGGGG	A	. burttii 20000562	GTTC-CCCGATTAAGTCAAA-TTGTTCCCCC-ACCATCCGTACCAAGGAGGAG-GGG.	ACGGA
A pervifolius 19891451 A pervifolius 19891451 A pervifolius 19891451 A pervifolius 19871069 A radioans 19622224 A radioans 19622224 A radioans 19622224 CT-T-C-CC TO ATTCATCANA-GTTTT - GGG-ACATAC-CCTACCAGGGGGA-GGGACGGA A radioans 19622224 A radioans 1962224 A radioans 19622224 CT-T-C-CC TO ATTCATCANA-GTTTT - GGG-ACATAC-CCTACCAGGGGGA-GGGACGGA A magnificus A malnificus A malnificus A malnificus A malnificus A malnificus A mainnamhus CT-T-C-CC TO ATTCATCANA-GTTTT - GGG-ACATAC-CCTACCAGGGGGA-GGGACGGA A might in 1980282 CT-T-C-CC TO ATTCATCANA-GTTTT - GGG-ACATAC-CCTACCAGGGGGA-GGGACGGA A might in 1960282 CT-T-C-CC TO ATTCATCANA-GTTTT - GGG-ACATAC-CCTACCAGGGGGA-GGGACGGA A might in 1960282 CT-T-C-CC TO ATTCATCANA-GTTTT - GGG-ACATAC-CCTACCAGGGGGA-GGGACGGA A might in 1960283 CT-T-C-CC TO ATTCATCANA-GTTTT - GGG-ACATAC-CCTACCAGGGGGA-CGGACGGA A might in 1960283 CT-T-C-CC TO ATTCATCANA-GTTTT - GGGG-ACATAC-CCTACCAGGGGGA-CGGACGGA A might in 1960283 CT-T-C-CC TO ATTCATCANA-GTTTT - GGGG-ACATAC-CCTACCAGGGGGA-CGGACGGA A might in 1960283 CT-T-C-CC TO ATTCATCANA-GTTTT - GGGG-ACATAC-CCTACCAGGGGGA-CGGACGGA A malnificus CT-T-C-CC TO ATTCATCANA-GTTTT - GGGG-ACATAC-CCTACCAGGGGGA-CGGACGGA A might in 1960283 CT-T-C-CC TO ATTCATCANA-GTTT - CGGGG-ACATAC-CCTACCAGGGGGA-CGGACGGA A might in 1960283 CT-T-C-CC T-C-T-C-T-C-T-C-T-C-T-C-T-C-T-			GT-TC-CCCGATTAMGTCANA-TTGTTGCGC-ACGATGCATACCAAGGAGGAGGG	ACGGA
A partifolius 1981451 A radioans 1982224 A radioans 1982225 A radioans 1982224 A radioans 1982223 A radioans 1982224 A radioans 1982223 A radioans 1982223 A radioans 1982224 A radioans 1982225 A radioans 1982224 A radioans 1982225 A radioans 1982227 A radioans 1982224 A radioans 1982227 A radioans 1982227 A radioans 1982227 A radioans 1982228 A radioans 1982227 A radioans 1982228 A radioans 198228 A radioa			GI-TC-CCTGATTCAATCAAA-GTTTTGGGGG-ATGATGCATACCCACCACCACCACCACCACCACCACCACCACCACC	
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A. bracteatus A. humilis GT-TCGCCGACACTGACCA-T-AA-GTGGTGCGGAGAGGATGCATACGAAGGAGGAGGGACGGA A. humilis GT-TCGCCGACACTGACCA-T-AA-GTGGTGCGGCGACGATGCATACGAAGGAGGAGGGACGGA A. hildebrandii AY047040 A. hildebrandii 19991628 A. gracilis 19802575 A. gracilis 19821970 A. hossensii A. hossensii A. hossensii GT-TCGCCGACACTGACCA-T-AAA-TGGTGGTGTCAGGTGGTGCATACGAAGGAGGA-GGGACGGA A. macranthus GT-TCGCCGACACTGACCA-T-AAA-TGGTGGTGTCAGGTGGCGGTGCATACGAAGGCGGACGGA-GGGACGGA A. macranthus GT-TCGCCGACACTGACCA-T-AAA-TGGTGGTGTCAGGTGCGGTGCATACGAAGGCGGACGGA-GGGACGGA A. parviflorus 19671067 A. aff. parviflorus 19672220 A. mimetes A. sikkimensis GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. assetzoyunnanensis GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCAGGAACGATGCATACGAAGGAGAG-GGGACGGA A. lineatus 19970613 A. lineatus 19970613 A. lineatus 19991622 A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGGTGTCAGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGGTGTCAGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGGTGTCAGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGTGTGTGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCAT-CA-T-AATGGTGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCA-T-AATGGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCA-T-AATT-TGGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCA-T-AATT-TGGTGTGTGGGAACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GT-TCGCCGACACTGACCA-T-AATT-TGGTGTGG			GIICGCCGACACTGACCA-T-AATTGGTGTTTTGGAGACGATGCATACCCACCA	accs.
A. bracteatus A. humilis GT-TCGCCGACACTGACCA-T-AA-GTGGTGTCTGGGCGACGATGCATACGAAGGAGAGGGACGGA A. humilis GT-TCGCCGACACTGACCA-T-AAA-TGGTGGTGTCGGCGACGATGCATACGAAGGAGGAGGGACGGA A. hildebrandii AY047040 A. hildebrandii 19991628 A. gracilis 19802575 A. gracilis 19802575 A. gracilis 19802575 A. hosseusii A. hookeri A. hookeri A. macranthus GT-TCGTCGACACTGGCCA-T-AAA-TGGTGGTGTCGGTGACGATGCATACGAAGGCGGA-GGGACGGA A. parviflorus 19671067 A. aff. parviflorus 19671067 A. aff. parviflorus 19672220 A. mimetes A. siktimensis A. arfakensis GT-TCGCCGACACTGACCA-T-AAGTGGTGGTGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. siktimensis GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGAACGATGCATACGAAGGAGGA-GGGACGGA A. lineatus 19991622 A. lineatus 19970613 A. lineatus 19991624 A. pachytrichns A. pachytrichns GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. parviflorus GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. parviflorus GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGA-GGGACGGA A. siktimensis GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGA-GGGACGGA A. lineatus 19991622 GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGA-GGGACGGA A. lineatus 19991622 GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGA-GGGACGGA A. pachytrichns GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTGGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. pachytrichns GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTGGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. pachytrichns GT-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTGGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. pachytrichns GT-TCGCCGACACTGACCAT-CA-T-AATT-TGGCGGTGTCGGGAACGATGCATACGAAGGAGGA-GGGACGGA A. parvettii GT-TCGCCGACACTGACCAT-CA-T-AATT-TGGTGTGTGGGGAACGATGCATACGAAGGAGGA-GGGACGA A. parvettii GT-TCGCCGACACTGACCA-T-AATT-TGGTGTGTGGGGAACGATGCATACGAAGGAGGA-GGGACGA A. parvettii GT-TCGCCGACACTGACCA-T-AATT-TGGTGTGTGGGGAACGATGCATACGGAGACGAGA A. parvettii GT-TCGCCGACACTGACCA-T-AATT-TGGTGTGGGGAACG			GIICCCCGA	CCCT
A. hildebrandii_AY047040 A. hildebrandii_19991628 A. gracilis 19802575 A. gracilis 19802575 A. gracilis 19821970 A. hosseusii A. hosseusii A. hosseusii A. macranthus A. macranthus A. parviflorus 19671067 A. aff. parviflorus 19672200 A. mimetes A. sikkimensis A. arikansis A. arikansis A. arikansis A. arikansis A. arikansis A. alteroyunnanensis A. lineatus 19991613 A. lineatus 19991613 A. parabytrichus A. pachytrichus A. pachytr			GI-TICGCCGACACTGACCA-T-AAGTGGTGTCTGGAGACGATGCATACCAACCACCA	0000
A. hildebrandii AY047040 A. hildebrandii 19991628 A. gracilis 19821970 A. hossensii A. hossensii A. hossensii A. parviflorus 19671067 A. iff. parviflorus 1967220 A. mimetes A. sikimensis A. ariakensis A. ariakensis A. ariakensis A. ariakensis A. ariakensis A. pachytrichus A. pachytrich			GT-TCGTCGACACTGACCA-T-AAGTGGTGTGGGCGACGATGCATACGAAGGAGGAGGGG	CGGA
A. hildebrandii 19991628 A. gracilis 19802575 A. gracilis 19821970 A. hosseusii GTTCGTCGACACTGGCCA-T-AAATGGTGGTGTCAGGTGGCGGTGCATACGAAGGCGGA-GGGACGGA A. bookeri A. bookeri GTTCGCCGACACTGGCCA-T-AAATGGTGGTGTCGGGGTGCATACGAAGGCGGA-GGGACGGA A. macranthus GTTCGCCGACACTGACCA-T-AAGTGGTGGTGTCGGGAGGAGGAGGAGAGAGAGGAGGAGGA A. parviflorus 19671067 A. aff. parviflorus 19672220 A. sikkimensis A. sikkimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGAGGAGGAGAGAGGAGGA-GGGACGGA A. sikkimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGAGAGGAGA			GT - TCGTCGACACTGACCA-T-AAATGGTGGTGTTCGGTGACGATGCATACCAAGGCGGAG-GGGA	CGGA
A. gracilis 19821970 A. hossensi A. hossensi A. hossensi A. macranthus GTTCGTCGACACTGGCCA-T-AAA-TGGTGGTGTCAGGTGGCGGTGCATACGAAGGCGGAG-GGGACGGA A. parviflorus 19671067 A. aff. parviflorus 1967220 A. mimetes A. siktimensis A. siktimensis A. arfakensis A. arfakensis A. arfakensis A. arfakensis A. ineatus 19970613 A. lineatus 19970613 A. lineatus 1999162 A. pachytrichus A. parviflorus GTTCGCCGACACTGACCAT-CA-T-AATGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. parviflorus GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA CTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. siktimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. lineatus 19970613 A. lineatus 19970614 A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AATT-TGGTGTGTGCGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AATT-TGGTGTGTGCGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AATT-TGGTGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AATT-TGGTGTGTCCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AATT-TGGTGTGTCCGGGAGACGATGCATACGAAGGAGAGGGGACGGA A. pachytrichus GCTCGCCGACACTGACCA-T-AATT-TGGTGTGTCCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCA-T-AATT-TGGTGTGTCCGGGAGACGATGCATACGAAGGAGAGGGGACGGA A. pachytrichus GCTCGCCGACACTGACCA-T-AATT-TGGTGTGTGCGGAGACGATGCATACGAAGGAGAGGGGACGGA A. pachytrichus GCTCGCCGACACTGACCA-T-AATT-TGGTGTGGTG	A.	hildebrandii 19991628	GT-TCGTTGACACTGACTA-T-AAACGCGCTCTCACGCTCATCACGACGTGGAGGGGGGGGGG	.CGGA
A. hossensii A. hookeri A. macranthus GTTCGCCGACACTGACCAT-CA-T-AAATGGTGCGTCTCGGGAGACGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGA	A.	gracilis 19802575	GT-TCGTCGACACTGGCCA-T-AAA-TGGTGGTGTTAGTGGCGCTCCATACGAAGGCGGAG-GGGA	.CGGA
A. bookeri A. macranthus A. parviflorus 19671067 A. aff. parviflorus 1967220 A. mimetes A. mimetes A. mimetes A. mimetes A. arfakensis A. arfakensis A. artakensis A. arta	A.	gracilis 19821970	GT-TCGTCGACACTGGCCA-T-AAATGGTGGTGTTABGTGCGTGCA-TACGAAGGCGGGAG-GGGA	CGGA
A. macranthus A. parviflorus 19671067 A. aff. parviflorus 19672220 A. mimetes A. sikkimensis A. sikkimensis A. sikroyunnanensis A. lineatus 19970613 A. lineatus 19970613 A. lineatus 1999162 A. pachytrichus A. pachytrichus A. pachytrichus A. pachytrichus A. sikkimensis A. sikkimensis A. sikroyunnanensis A. sikroyunnanensis A. sikroyunnanensis A. lineatus 19970613 A. lineatus 19970613 A. lineatus 19970614 A. pachytrichus A. pach			GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGCAGACGACGACAACGAAGCCGCAC	CGGA
A. parviflorus 19671067 A. aff. parviflorus 1967220 A. mimetes A. sikkimensis A. sikkimensis A. sikkimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. sikkimensis A. sikkimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. sikkimensis A. sikkimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. sikkimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. lineatus 19970613 GTTCGCCGACACTGACCA-T-AATT-TGGTGTTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. lineatus 19991622 GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. paudohybridus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. paudohybridus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. paudohybridus GTTCGCCGACACTGACCA-T-AATT-GTGGTGTGCGGAGACGATGCATACGAAGGAGGAGGGACGGA A. paudohybridus GTTCGCCGACACTGACCA-T-AATT-TGGTGTTGTGCGAGAGCATGCATACGAAGGAGAGGGGACGGA A. suminatus 19991444 GTTCGCCGACATTGACCA-T-AATT-TGGTGTTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. acuminatus 19991444 GTCGGCCGACATTGACCA-T-AAGTGGTGGGGAGAGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 GTCGGCCGACATTGACCA-T-AAGTGGTGTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 GTCGGCCGACATTGACCA-T-AAGTGGTGTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 A. myrmecophilus GTTCGCCGACATTGACCA-T-AAGTGGTGTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 A. myrmecophilus GTTCGCCGACATTGACCA-T-AAGTGGTGTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 A. myrmecophilus GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 A. myrmecophilus GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 A. myrmecophilus GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGA			GI-TCGCCGACACTGACCA-T-AAGTGGCGGTGTCGGGAGACGATGCATACGAACCACAACCCA	CCCT
A. aff. parviflorus 19672220 A. mimetes A. mimetes A. ariakonsis A. aria			GIIUGUUGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATCCATACCAACCACCA	0000
A. mimetes A. sikkimensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTGTGGGAGAGGATGCATACGAAGGAGGAGGGACGGA A. arfakensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. arfakensis GTTCGCCGACACTGACCA-T-AAGTGGTGGTGTTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. mimetus 19970613 GTTCGCCGACACTGACCA-T-AAGTGGTGGTGTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. lineatus 19991622 GTTCGCCGACACTGACCA-T-AAGTGGTGGTGTGCGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. paeudohybridus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCAT-CA-T-AATGTGTGTGCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCA-T-AAT-T-TGGTGTTGTGCGAGAGACGATGCATACGAAGGAGGAGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCA-T-AAT-T-TGGTGTGGGAGAGGATGCATACGAAGGAGGAGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCA-T-AAT-T-TGGTGTGGGAGAGACGATGCATACGGAAGGAGGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCA-T-AAT-TGGTGTGGGAGAGAGATGCATACGGAAGGAGGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCA-T-AAT-TGGTGTCGGAAGACGATGCATACGGAAGGAGGGGACGGA A. acuminatus 19991444 GTCGGCCGACACTGACCA-T-AAGTGGTGTCGGAAGACGATGCATAC-AGAGGAGGAGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCA-T-AAT-T-TGGTGTCGGAAGACGATGCATACGGAAGGAGGGGACGGA A. paeudohybridus GTTCGCCGACACTGACCA-T-AAT-T-TGGTGTCGGAAGACGATGCATACGGAAGGAGGGGACGGA A. paeudohybridus GTTCGCCGACACTGAC			GI-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAACCACCACCCA	CCCN
A. sikkimensis GTTCGCCGACACTTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. safakensis GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. sustroyunnanensis GTTCGCCGACACTGACCA-T-AATT-GTGTTTGGCAGACGATGCATACGAAGGAGGAGGGACGGA A. lineatus 19970613 GTTCGCCGACACTGACCA-T-AAGTGGTGGTGCGGAGACGATGCATACGAAGGAGGAGGGACGGA A. lineatus 19991622 GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGAGACGATGCATACGAAGGAGAGGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCCGGGAGACGATGCATACGAAGGAGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GTTCGCCGACACTGACCA-T-AATTGGTGTTGTGCACGATGCATACGAAGGAGAGAGGGACGGA A. pachytrichus GTTCGCCGACACTGACCA-T-AATTGGTGTTGTGCACGATGCATACGAAGGAGAGGGGACGGA A. suminatus 19991494 GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. acuminatus 19991444 GTCCGCCGACACTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. suminatus 19991444 GTCGGCCGACACTGACCA-T-AAGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA GTTCGCCGACACTTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. sp. 00171 GTTCGCCGACACTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. viridiflorus 20000228 GTTCGCCGACACTGACCA-T-AATT-TGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA GTTCGCCGACACTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAAGGAGA-GGGACGATGCATACGAAGGAGAGGAGGGACGGA A. viridiflorus 20000228 GTTCGCCGACACTGACCA-T-AATT-TGGTGTCGGGAGACGATGCATACGAAGGAGAGGGACGGA GTTCGCCGACACTGACCA-T-AATT-TGGTGTCGGGAGACGATGCATACGAGGGACGGA A. viridiflorus 20000228	Α.	aff. parviflorus 19672220	GI-ICGCCGACACIGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAACCACCACCCA	CCCT
A. arfakensis GTTGCCGACACTGACCA-T-AAGTGGTGGTGTGGGAGACGATGCATACGAGGAGAGAGGGACGA A. austroyunnanensis GTTTGCCGACACTGACCA-T-AATTTGGTGTTGGGAGAGATGCATATGAAGGAGAGGGACGA A. Lineatus 19970613 GTTCGCCGACACTGACCA-T-AAGTGGTGGTGTGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. Lineatus 19991622 GTTCGCCGACACTGACAT-CA-T-AAGTGGTGGTGCGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCCGGAGACGATGCATACGAAGGAGGAGGGACGGA A. pachytrichus GCTCGCCGACACTGACCCA-T-AAT-T-TGGTGTTGTGCGAGAGATGCATACGAAGGAGGAGGGACGGA A. batakiorum GTTCGCCGACACTGACCA-T-AAT-T-TGGTGTTGTCGGAGAGATGCATACGAAGGAGAGGGACGGA A. acuminatus 19991496 A. acuminatus 19991444 GTCCGCCGACACTGACCA-T-AAT-TGGTGTCGGCAGACGATGCATACGAAGGAGGAGGGACGGA A. myrmecophilus GTTCGCCGACACTGACCA-T-AAT-TGGTGTCGGCAGACGATGCATACGAAGGAGGAGGGACGGA A. sp. 00171 A. viridiflorus 20000228 GTTCGCCGACACTGACCA-T-AAT-T-TGGTGTCGGCAGACGATGCATACGGAGGAGGGACGGA GTTCGCCGACACTGACCA-T-AAT-TGGTGTCGGCAGACGATGCATACGGAGGAGGGACGGA GTTCGCCGACACTGACCA-T-AAT-TGGTGTCGGCAGACGATGCATACGAAGGAGGAGGGACGGA A. sp. 00171 A. viridiflorus 20000228			GI-TUGUUGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAACCACCA	COCK
A. sustroyunnanensis A. lineatus 19970613 GTTCGCCGACACTGACCA-T-AAT?-TGGTGTTGGGAGAGCGATGCATACGAGGAGGGACGGA A. lineatus 19970613 GTTCGCCGACACTGACCA-T-AAGTGGCGGTGTCGGGAGACGATGCCATACGAAGGAGGAGGGACGGA A. lineatus 19991622 GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCTGGGAGACGATGCATACGAAGGAGGA?-GGGACGGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AATGGTGTGGTG			GI-TCGCCGACACTGACCAT-CA-T-AAGTGGTGTGTCGGGAGACGATGCATACGAACCACCACCCA	CCCT
A. lineatus 19970613 GTTTCGCCGACACTGACTTACTTACTGCGGGGTGTCGGGAGACGATGTCCATACGAAGGAGGAGA-GGGACGGA A. lineatus 19991622 GTTTCGCCGACACTGACCAT-CA-T-AA-GTGGTGGTGTGCGGAGACGATGCATACGAAGGAGGA?-GGGACGGA A. pachytrichus GCTTCGCCGACACTGACCAT-CA-T-AA-GTGGTGGTGCCGGAGACGATGCATACGAAGGAGGA?-GGGACGGA A. paeudohybridus GTTTCGCCGACACTGACCA-T-AA-TGGTGTGTGCGACGATGCATACGAAGGAGGA-GGGACGGA A. paeudohybridus GTTTCGCCGACACTGACCA-T-AA-TTTTGTGTGTTGTGCGACGATGCATACGAAGGAGGA-GGGACGGA A. paeudohybridus GTTTCGCCGACATTGACCA-T-AA-TTTTGTGTGTGGGAGACGATGCATACGAAGGAGAGGGGACGGA A. paeudohybridus GTTTCGCCGACATTGACCA-T-AA-TTTTGGTGTTGGGAGACGATGCATACGAAGGAGAGGGGACGGA A. paeudohybridus GTTTCGCCGACATTGACCA-T-AA-TTTTGGTGTTGGGAGACGATGCTTACGAAGGAGAGGGGACGGA A. acuminatus 19991444 A. myrmecophilus GTTTCGCCGACATTGACCA-T-AA-GTGGTGTCGGAGAGATGCATACGAAGGAGGAGGGACGGA A. sp. 00171 GTTCGCCGACATTGACCA-T-AATTTTGGTGTCGGAGAGAGTGCATACGAAGGAGGAGGGACGGA A. viridiflorus 20000228 GTTTCGCCGACATTGACCA-T-AATTTTGGTGTCGGAGAGAGATGCATACGGAGGAGGGACGGA GTTTCGCCGACATTGACCA-T-AATTTTGGTGTCGGAGAGAGATGCATACGGAGGAGGGACGGA A. viridiflorus 20000228			GI-TIGCCGACACTGACCA-T-AAT?-TGGTGTTGGGAGACGATGCATATCCACCA-CCCA	acca
A. lineatus 19991622 GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCGGAGAGGATGCATACGAAGAGGAGAGGGACGA A. pachytrichus GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCCGGAGACGATGCATACGAAGGAGGAGGGACGA A. pseudohybridus GTTCGCCGACACTGACCA-T-AATTGGTGTTGTCGGAGAGAGTGCATACGAAGGAGGAGGGACGA A. parattii GTTCGCCGACACTGACCA-T-AATTGGTGTTGTCGGAGAGACGATGCATACGAGGAGGGACGA A. acuminatus 19991496 GTCCGCCGA			GI-TUGUUGACACTGACCA-T-AAGTGGCGGTGTCGGGAGACGATGCCATACGAACGACCACCCA	CCCT
A. pseudohybridus A. pseudohybridus A. pseudohybridus A. pseudohybridus A. pseudohybridus A. parettii A. acuminatus 19991496 A. acuminatus 19991444 A. mymecophilus A. pseudohybridus A. pseudohybridus A. parettii A. acuminatus 19991444 A. mymecophilus A. pymecophilus A.			GI-TUGUUGACACTGACCAT-CA-T-AAGTGGTGGTGCCGGGAGACGATGCATACCAACCACCAC	
A. pseudohybridus GTTCGCCGACACTGACCA-T-AATGGTGTGCCGCGAGAGGATGCATACGAGGAGAGAGGGACGGA A. batakiorum GTTCGCCGACACTGACCA-T-AAT-TGGTGTTGTGCGAGGATGCATACGGAGGAGGGACGGA A. garrettii GTTCGCCGACACTGACCA-T-AAT-TGGTGTCGGAGAACGATGCATACGGAGGAGGGACGGA A. acuminatus 19991496 GTCGGCCGACACTGACCA-T-AAGTGGTGTCGGAGAACGATGCATACGAAGAGAGAGGGACGGA A. myrmecophilus GTCGGCCGACACTGACCA-T-AAGTGGTGTCGGAAGAAGAGAGAGAGGAACGAGAGAGAGAGAGAGAG			GI-TCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGCGAGACGATGCATACGAACGACGACGACGACGACGACGACGACGACGACGACG	- 003
A. batakiorum GTTCGCCGACATTGACCA-T-AATTGGTGTTGTCGAGGATGCATATGAGGAGGGACGGA A. garrettii GTTCGCCGACATTGACCA-T-AATTGGTGTTGTCGGAGAGATGCATACGAGGAGGGACGGA A. acuminatus 19991496 A. acuminatus 19991444 GTCCGCCGACATGACCA-T-AAGTGGTGTCGGAGAGACGATGCATACAAGAGAGAGAGGGACGGA A. myrmecophilus GTTCGCCGACATGACCA-T-AAGTGGTGTCGGAGAGACGATGCATACAAGAGAGAGGGACGGA A. sp. 00171 A. viridiflorus 20000228 GTTCGCCGACATTGACCA-T-AATTGGTGTCGGAGAGACGATGCATACGGAGGAGGGACGAGAGAGAGAGATGCATACGGAGGAGGGACGAGAGAGAGAGATGCATACGGAGGAGGGACGAGAGAGAGAGATGCATACGGAGGAGGGACGAGAGAGAGAGATGCATACGGAGGAGGGACGAGAGAGAGATGCATACGGAGGAGGGACGAGAGAGAGATGCATACGGAGGAGGGACGAGAGAGAGATGCATACGGAGGAGGGACGAGAGAGAGATGCATAC			GCTTCGCCGACACTGACCATTCATTCATCCAACCACCACCACCACCACCACCACC	0000
A. garrettii GTTCGCCGACATTAGCCA-T-AAT-TGGTGTCGGAGAGATGACATACGGAGGAGGGACGGA A. acuminatus 19991496 GTCGGCCGACATGACCA-T-AAT-TGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. acuminatus 19991444 GTCGGCCGACACTGACCA-T-AAT-TGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA A. myrmecophilus GTTCGCCGACATTGACCA-T-AAT-TGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA A. viridiflorus 20000228 GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGGACGGA GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGGACGGA GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGGACGGA GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGGACGGA GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGGACGGA GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGGACGGA GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATG			GIICGCCGACACTGACCA-T-AATTGGTGTTGTGCGACGATGCATATCCACCACCCAC	acca
A. acuminatus 19991496 A. acuminatus 19991444 A. myrmacophilus A. sp. 00171 A. viridiflorus 20000228 GTTCGCCGACATCGACCA-T-AATTGGTGTCGGAGAGACGATGCATACGAAGGAGGAGGGACGGA A. viridiflorus 20000228			GITTICGCCGACATTGACTTCACTTCACTTCTCGGGGAGACGATGTCTCCACCACCACCACCACCACCACCACCACCACCACCAC	0001
A. acuminatus 19991444 A. myrmacophilus GTCGGCCGACACTGACCA-T-AAGTGGTGTCGGAGAGAGATGCATACGAAGAGAGAGGGACGGA A. sp. 00171 A. viridiflorus 20000228 GTTCGCCGACATTGACCA-T-AATTGGTGTCGGAGAGACGATGCATACGGAGCAGGGACGGA GTTCGCCGACATTGACCA-T-AAT-T-TGGTGTCGGAGAGACGATGCATACGGAGCAGGGACGAGAGACGATGCATACGGAGCAGGGACGGAGACGATGCATACGGAGCAGGACCGGACATGACCATAC			GI-TCCCCGAGTGTCGGGAGACGATGCTTACCAACCACCA	2001
A. sp. 00171 GT-TCGCCGACATTGACCA-T-AATTGGTGTCGGAGAGAGAGGATGCATACGAAGGAGGAGGGACGGA A. viridiflorus 20000228 GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGACGGA GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGAGGAGGACGGA GTTCGCCGACATCGACCA-T-AATTGGTGTGTGGGAGACGATGCATACGAGGAGGACGACGA			GICGCCGACACTGACCA-T-AAGTGGTGTCGCGAGACGATGCATACCAACCACCA	2001
A. sp. 00171 GTTCGCCGACATTGACCA-T-AATTGGTGTCGGAGAGACGATGCATACGGAGGAGGGACGA A. viridiflorus 20000228 GTTCGCCGACATCGACCA-T-AATTGGTGTCGGAGAGACGATGCATACGCACGACATGACCA-T-AATTGGTGTTCGGAGAGACGATGCATACGCACGACGA			GITTCGGCCGACACTGACTTCACTTCACTTCACTTCGGCACACCATCCTTCACCAACCA	~~~
A. viridiflorus 20000228 GT-TCGCCGACATGACCA-T-AAT-TGGTGTGTGCGGACACGATGAGGGACGGA			GTTCGCCGACATTGACCA-T-AATTCGTGTGCGCACACGATGCATACGGAGGAGGGAC	CGGA
			GTTCGCCGACATCGACCA-T-AATTCGTGTGCGCACACCATGCATACGGAGGAGGGAC	CGGA
- ISSI ISSI ISSI ISSI ISSI ISSI ISSI IS			GTTCGTCGACACTGACCA-T-AAATGGTGGTGTTCCGTGACGATGCATACGGAGGAGGGAC	2GGA
			GGGGA	1000

Fig. 25 (continued)

		410	420	430	440	450	460	470	480
~	1-11								
	r. baileyi s. forrestii	TATTGGCCTCCCGTTA' TATTGGCCTCCCGTTA'							
	curtisii	CATTGGCCTCCCGTTA							
	musaensis	TATTGGCCTCCCGTTA							
	javanicus 19971339	TATTGGCCTCCCGTTA							
A.	aff. javanicus 20010484	CATTGGCCTCCCGTTA	TCC-AAGC	ATAGCGGCCGC	GCACAAATA-	GTATACCGT	GTCGATTO	SAT	-GTCACACG
	vinaceus	TATTGGCCTCCCGTTA:							
	nummularius	TATTGGCCTCCCGTTA:							
	ellipticus	TATTGGCCTCCCGTTA'							
	oxychlamys	TATTGGCCTCCCGTTA							
	roseoflorus irigaensis 19972532	TATTGGCCTCCCGTTA:							
	irigaensis 19991999	TATTGGCCTCCCGTTA							
A.		TATTGGCCTCCCGTTA							
	obconicus	yATTGGCCTCCCGTTA'							
A.	sp. 001	TATTGGCCTCCCGTTat	CC-AAGCA	ATAGCGGCCGC	GCACAAATA	GTGTACCGT	GTCGATTO	AT	-GTCACACG
	rhododendron	TATTGGCCTCCCGTTA							
	sp. 0025_123	TATTGGCCTCCCGTTA							
	sp. 20002051	TATTGGCCTCCCGTTA							
	sp. 00293	TATTGGCCTCCCGTTA							
	sp. 20000557A	TATTGGCCTCCCGTTA' TATTGGCCTCCCGTTA'							
	tricolor tricolorxparvifolius	TATTGGCCTCCCGTTA							
	burttii 20000562	TATTGGCCTCCCGTTA							
	burttii 20000536	TATTGGCCTCCCGTTA							
	arctocalyx	TATTGGCCTCCCGTTA							
	chrysanthus	TATTGGCCTCCCGTTA							
	parvifolius 19881451	TATTGGCCCCCGTTA!							
A.	parvifolius 19671069	TATTGGCCCCCCGTTA	TCC-AAGTA	ATAGCGGCCGC	GCACAAATA-	GTATACCGT	GTCGATTO	AT	-GTCACACG
	radicans 19622826	TATTGGCCTCCCGTTA	CC-AAGTA	TACCGGCCGG	GCACAAATA-	GTATACCGT	GTCGATTO	AT	-GTCACACG
	radicans 19672224	TATTGGCCTCCCGTTA:							
	argentii	TATTGGCCTCCCGTTA:							
	magnificus	TATTGGCCTCCCGTTA							
	malulidii 19980282	TATTGGCCTCCCGTTA'							
	malulidii 19980283 siphonanthus	TATTGGCCTCCCGTTA:							
	aff. siphonanthus	TATTGGCCTCCCGTTA							
	speciosus	TATTGGCCTCCCGTTA							
A.	-	TATTGGCCTCCCGTTA							
	pachyanthus	TATTGGCCTCCCGTTA							
	longicaulis 19672218	TATTGGCCTCCCGTTA:							
A.	longicaulis 20001430	TATTGGCCTCCCGTTA	TCT-GAGCA	ATAGCGGCCGG	CACAAATAA	ATAGTATGCCGT	GTCGATGO	AT	GTCACACG
A.	albidus	TATTGGCCTCCCGTTA							
	sp.nov.20000512	TATTGGTCTCCCGTTA							
	viridiflorus 20000332	TATTGGCCTCCCGTTA'							
	viridiflorus 20021227	TATTGGCCTCCCGTTA							
	fecundus fulgens 19900384	TATTGGCCTCCCGTTAT							
	fulgens 20002032	TATTGGCCTCCCGTTA							
	angustifolius	TATTGGCCTCCCGTTA							
	fruticosus	TATTGGCCTCCCGTTA							
	buxifolius	TATTGGCCTCCCGTTAT							
A.	ceylanicus	TATTGGCCTCCCGTTA	CC-AAGCA	TAGCGGCCGG	CACAAATA	ATATGTCGT	GTCGATGG	AT	GTCACACG
	bracteatus	TATTGGCCTCCCGTTA:							
	humilis	TATTGGCCTCCCGTTAT							
	hildebrandii AY047040	TGTTGGCCTCCCGTTA							
	hildebrandii 19991628 gracilis 19802575	TATTGGCCTCCCGTTA:							
	gracilis 19821970	TATTGGCCTCCCGTTA							
	hosseusii	TATTGGCCTCCCGTTAT							
A.	hookeri	TATTGGCCTCCCGTTA							
A.	macranthus	TATTGGCCTCCCGTTA							
	parviflorus 19671067	TATTGGCCTCCCGTTAT							
	aff. parviflorus 19672220	TATTGGCCTCCCGTTAT							
	mimetes	TATTGGCCTCCCGTTA							
	sikkimensis	TATTGGCCTCCCGTTA							
	arfakensis	TATTGGCCTCCCGTTAT							
	lineatus 19970613	TATTGGCCTCCCGTAA							
	lineatus 19970613	TATTGGCCTCCCGTTAT							
	pachytrichus	TATTGGCCTCCCGTTA							
	pseudohybridus	TATTGGCCTCCCGTTAT							
	batakiorum	TATTGGCCTCCCGTTA			A 10 10 10 10 10 10 10 10 10 10 10 10 10				
	garrettii	TATTGGCCTCCCGTTA							
	acuminatus 19991496	TATTGGCCTCCCGTTAT							
	acuminatus 19991444	TATTGGCCTCCCGTTAT							
	myrmecophilus	TATTGGCCTCCCGTTG							
	sp. 00171	TATTGGCCTCCCGTTAT							
	viridiflorus 20000228	TATTGGCCTCCCGTTAT							
А.	andersonii	ATATTGGCCTCCCGTT	11 CCAAGCA	MOCOCCOC	CACAAATA	GIATGUTGTC	JICGATGG	M1	GICACACG

Fig. 25 (continued)

		490	500	510	520	530	540	550	560
C	yr. baileyi	ATACGTGGTGGC	GGTTAG-ATC-C	TTCCACTTCCAA	ACTATCE	-		1	1
	ys. forrestii	ATACGTGGTGGC ATACGTGGTGG-	TTGG-ATT-C	TTCAACTTGCAAA	ACTATE	GATATCGIGIGG	GAAT-GCG	TCTAGCCAC	-GGGCA
	curtisii	ATATGTGGTGG-	TTGG-ATT-C	CTCAACTTGCGAA	-CT	-ATATCGTGTGC	GACTC-CA	TCArTCCAC	-GGGCC
	musaensis	ATATGTGGTGG-	TTGG-ATT-C	GTCAACTTGCGAA	-CT	ATCGTGTGG	GATTC-CA	TCGATCCAC	-GGGCC
	. javanicus 19971339	ATAYGTGGTGG-	TTGG-ATT-C	CTCAACTTGCGAA	4-CT	-??ATCGTGTGC	GACTC-CA	TCAATCCAC	-GGGCC
	aff. javanious 20010484 vinaceus	ATACGTGGTGG-	TTGG-ATT-C	CTCAACTTGCGAA	-CT	-ATATCGTGTGC	GACTC-CA	TCAATCCAC	-GGGCT
	nummularius	ATATGTGGTGG-	TTGG-ATT-CC	CTCAACTTGCGAA	7-CC	ATCGTGTGC	GACTC-CA	TCAATCCAC	-GGAyC
	ellipticus	TTAAGTGGTGG-	TTGG-ATT-C	CTCAACTTGCGAA	-CT	ATCGTGTGG	GACTU-CA	TCGATCGCC	-GGGCA
	oxychlamys	ATAAGTGGTGG-	TTGG-ATTTC	CTCAACTTGCGAA	-CT	ATCGTGTGC	GACTC-CA	TCGATCGAC	GGGCA
	roseoflorus	ATACGTGGTGG-	TTGG-ATT-C	CTCAACTCGCGGA	-CT	ATCGTGTGG	GACTC-CG	TCGATCGAC	GGGCA
	irigaensis 19972532	ATATGTGGTGG-	TTGG-ATT-C	CTCAACTTGCGAG	-CT	ATCGTGTGG	GACTC-CA	TCAATCGAC	GGGCT
	irigaensis 19991999	ATATGTGGTGG-	TTGG-ATT-C	CTCAACTTGCGAG		ATCGTGTGG	GACTC-CA	TCAATCGAC	GGGCT
	philippinensis obconicus	ATATGTGGTGG-	TTGG-ATT-G	CTCAACTCGCGAA	-CT	ATCGTGTGG	GACTC-CA	TCGATCCAC	-GGGCC
	sp. 001	ATATGTGGTGG	TTGG-ATT-CC	TCAACTIGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC	GGGCC
	rhododendron	ATATGTGGTGG-	TTGG-ATA-AC	CTCAACTTGCGAA	-CT	ATCGTGTGG	GACTC-CA	CTGATCCAC	CCCCT
A.	sp. 0025_123	ATATGTGGTGG-	TTGG-ATT-CO	CTCAACTTGCGAA	-CT	ATCGTGTGG	GACTC-CA	TCAATCCAC	GGGCC
	sp. 20002051	ATACGTGGTGG-	TTGG-ATT-CC	CTCAACTTGCGAA	-AT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC	GGGCC
	sp. 00293	ATATGTGGTGG	TTGG-ATT-AC	CTCAACTTGCGGA	-CT	ATCGTGTGG	GACTC-CA	TCAATCCAT	GGGCC
	sp. 20000557A	ATACGTGGTGG-	TTGG-ATT-CC	CTCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC	GGGCC
	tricolor tricolorxparvifolius	ATATGTGGTGG-	TTGG-ATT-CC	TCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC-I	GG-CT
	burttii 20000562	ATACGTGGTGG	TTGG-ATT-CC	TCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC	GGGCC
	burttii 20000536	ATATGTGGTGG	TTGG-ATT-AC	TCAACTIGCGGA	-CT	ATCGTGTGG	GACTC-CA	TCAATCCAT	GGGCC
_	arctocalyx	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA	-CT	-ATATCGIGIGG	GACTC-CA	TCAATCCACAT	TCCCC
	chrysanthus	ATACGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC	GGGGG
A.	parvifolius 19881451	ATACGTGGTGG	TTGG-ATT-CC	TCAACTGGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC	GGGCC
	parvifolius 19671069	ATACGTGGTGG	TTGG-ATT-CC	TCAACTGGCGAA	-CT	-ATATCGTGTGG	GACTC-CA'	TCAATCCAC	GGGCC
	radicans 19622826	ATACgTGGTGG	TTGG-ATT-CC	TCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	TCAATCCAC	GGGCC
	radicans 19672224	ATACGTGGTGG	TTGG-ATT-CC	TCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA'	TCAATCCAC	GGGCC
	argentii magnificus	ATATGTGGTGG	TTGG-ATT-CC	TCAACTTTCGAA	-CT	ATCGTGTGG	GACTC-CAT	CAATCCAC	GGGCT
	malulidii 19980282	ATATGTGGTGG-	-TTGG-ATT-CC	TCAACTTGCGAA	-CC	ATCGTGTGG	GACTC-CA	ICAATCCAC	GGACC
	malulidii 19980283	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTIGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	CAATCCAC	TGGCC
	siphonanthus	ATATGTGGTGG ATATGTGGTGG	-TTGG-ATT-TC	TCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	CAATCCAC	TGGCC
	aff. siphonanthus	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA	-CT	-ATATCGTGTGG	GACTC-CA	CAATCCAC	TGGCC
	speciosus	ATATGTGGGGG	· TTGG-ATT-CC	TCAACTTGCGAA	-CT	TATCGTGCGG	GATAC-CAC	CCGATCCAC	GGGCC
-	guttatus	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA-	-CT	ATCGTGTGG	GACTC-CAT	CGATCCAT	GGGCA
A.		ATACGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA-	-CT	ATCGTGTGG	GACTC-CAT	CGATCCAC	GGGCA
	longicaulis 19672218	ATATGTGGTGG	-TTGG-ATT-CT	TCAACTTGCGAA.	-CT	TATCGCTCGG	GGCTC-CAG	CCGATCCAC	GGGCT
	longicaulis 20001430 albidus	ATATGTGGTGG	TTGG-ATT-CT	TCAACTTGCGAA	-CT	TATCGCTCGG	GGCTC-CAC	CCGATCCAC	GGGCT
	sp.nov.20000512	ATATGTGGTGG	-TTGG-ATT-CT	TCAACTTGCGAA-	-CT	-TATCGCTCGG	GGCTC-CAC	CCGATCCAC	GGGCC
	viridiflorus 20000332	ATATGTGGTGG	-TTGG-ATT-CT	TCAACTTGCGAA-	-CT	-TATCGCTCGG	GCCTC-CAC	CGATCCAC	GGGCC
A.	viridiflorus 20021227	ATATGTGGTGG	-TTGG-ATT-CT	TCAACTTGCGAA-	-CT	-TATCGCTCGG	GGCTC-CAC	CGATCCAC	GGTCC
	fecundus	ATATGTGGTGG	-TTGG-ATT-CT	TCAACTAGCGAA-	-CT	TATCGCTCGG	GACTC-CAT	CGATCCAC	GGGCT
	fulgens 19900384	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTACGAA-	-CT	-TATCGTGCGAC	GACTC-CAC	CCGACCCAC	GAGCC
	fulgens 20002032	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTACGAA-	-CT	-TATCGTGCGA	GACTC-CAC	CCGACCCAC	GAGCC
	angustifolius fruticosus	ATATGTGGGGG	-TTGG-ATT-GC	TCAACTTGCGAA-	-CT	-TATCGTGCGG	GACAC-CAT	CGTTCCAC	GGGAC
	buxifolius	ATATGTGGGGG ACATGTGGTGG	-TTGG-ATT-CC	TCAACTITCGAA-	CT	TATCGTGCGG	GATAC-CAC	CCGATCCAC	GGGCC
	ceylanicus	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGAAAA-	-CT	-TATCGTGCGG	SACTC-CAC	CGATCCACC	GGGCT
A.	bracteatus	ATATGTGGTGG	-TTGG-ATT-CA	TCAACTTGCGAA-	-CT	ATCGTGTGAG	SACTC-CAC	CGACCCAC	GGTCC
	humilis	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGTA-	-CT	-TATCGTGCGG	GACCC-CAA	CGACCCAC	STGCT
	hildebrandii AY047040	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGTA-	-CT	-TATCGTGCGGC	GAATC-CAT	CGACCCAC	STGCT
	hildebrandii 19991628	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGTA-	-CT	-TATCGTGCGGC	GACTC-CAT	CGACCCAC	GTGCT
	gracilis 19802575 gracilis 19821970	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGTA-	-CT	-TATCGTGCGGT	FACTC-CAT	CGACCCAC	GTGCT
	hosseusii	ATATGTGGTGG ATATGTGGTGG	-TTGG-ATT-CC	TCAACTIGCGIA-	CT	-TATCGTGCGGT	TACTC-CAT	CGACCCAC	GTGCT
	hookeri	ATATGTGGTGG	-TTGG-ATT-GC	TCAACTTGCGAA-	-CT	-TATCGTGCGAC	ACTC-CAC	CGACCCACC	JGGCC
A.	macranthus	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA-	-CT	-TATCGTGCGAC	CACTC-CAC	CCACCCACC	CCCT
A.	parviflorus 19671067	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA-	CT	-TATCGTGCGAG	ACTT-CAC	CGACCCACC	GGGCC
	aff. parviflorus 19672220	ATAIGIGGIGG	-TIGG-ATT-CC.	TCAACTTGCGAA-	CT	-TATCGTGCGAG	SACTC-CAC	CGACCCACC	GGCC
	mimetes	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTACGAA-	-CT	-TATCGTGCGAC	GACTC-CAC	CGACCCACC	FAGCC
	sikkimeneis	ATATGTGGTGG	-TTGG-ATT-CC	TCAACTTGCGAA-	-CT	-TATCGTGCGAC	GACTC-CAC	CGACCCACC	GGGCC
	arfakensis austroyunnanensis	ATATGTGGGGG	-TTGG-ATT-CC	TCAACTTGCGAA-	CT	-TATCGTGCGGG	ATAC-CAC	CGATCCACC	GGGCC
	lineatus 19970613	ATATGTGGTGG	-TTGG?ATT-CC	TCAACTGGCGAA-	CT	- TATCGTGCGGG	ACTC-CAT	CGACCCACC	GCGCC
	lineatus 19991622	ATATGTGGTGG	-TTGG?ATT-CC	CAACTTGCGAA-	CT	-TATCGTGYGAG	ACTC-CAC	CCACCCAC(JGGCC
	pachytrichus	ATATGTGGTGG	-TTGG-ATT-CCT	CAACTTCCGAA-	CT	-TATCGTGCGCG	ACTC-CAC	CGACCCAC(SCCCC
	pseudohybridus	ATATGTGGGGG	-TTGG-ATT-GCT	CAACTTGCGAA-	CT	-TATCGTGCGGG	ACAC-CAC	CGTTCCACC	CCCC
	batakiorum	ATATGTGGTGG	-TTGG-ATT-CT	rcaacttgcgaa-	CT	-TATCGCTCGGG	GCTC-CAC	CGATCCACC	CTCC
	garrettii	ATATGTGGTGG	-TTGG-ATT-CCT	ICAACTTGCGAA-	CT	ATAGTGTGGG	ACTC-CAC	CGATCCACC	CACCT
	acuminatus 19991496	ATATGTGGTGG	-TTGG-ATT-TCT	FCAACTTGCGAA-	CT	 TATCGTGTGGG 	ACTC-CAC	CAATCCACC	CCCC
	acuminatus 19991444 myrmecophilus	ATATGTGGTGG	-TTGG-ATT-TCT	CAACTTGCGAA-	CT	 TATCGTGTGGG 	ACTC-CAC	CAATCCACC	GGCC
	sp. 00171	ATATGTGGTGG	-TIGG-ATT-CTI	CAACTTGCGAA-	CT	-TATCGCTCGGG	ACTC-CAC	CGATCCACC	GGGCC
	viridiflorus 20000228	ATATGTGGTGG	TTGG-ATT-CT	CAACTTGCGAA-	CT	-TATUGUTUGGG	GCTC-CAC	CGATCCACC	GGCC
	andersonii	ATATGTGGTGG	-TTGG-ATT-CCT	CAACTTGCGTA-	CT	TATOGUICOGO	ACCC-CAN	CGACCCACG	TOTO
						-11100100000	"ICCC-CHA	CONCUCHCC	1001

Fig. 25 (continued)

	570	580	590	600
Cyr. baileyi	C-GACCCTG-T C-GACCCAA-C			
Lys. forrestii A. curtisii	T-GACCCAA-T			
A. musaensis	C-GACCCAA-T-CA			
A. javanicus 19971339	T-GACCCAA-T			
A. aff. javanious 20010484	T-GACCCAA-T			
A. vinaceus	C-GACCCAA-T			
A. nummularius A. ellipticus	C-GACCCAAA			
A. oxychlamys	C-GACCCAA-C			
A. roseoflorus	C-GACCCAA-C			
A. irigaensis 19972532	C-GACCCAA-T			
A. irigaensis 19991999	C-GACCCAA-T	GGCAC	AAGAT-TG	CTCTCGA
A. philippinensis A. obconicus	C-GACCCAA-T T-GACCCAA-T			
A. sp. 001	T-GACCCAA-T			
A. rhododendron	C-GACCCAAAT			
A. sp. 0025_123	T-GACCCAA-T			
A. sp. 20002051	T-GACCCAA-T			
A. sp. 00293	C-GACCCAA-T			
A. sp. 20000557A A. tricolor	T-GACCCAA-T C-GACCCAA-T			
A. tricolorxparvifolius	T-GACCCAA-T			
A. burttii 20000562	C-GACCCAA-T	GGCAC	TAGAT-TG	CCCTCGA
A. burttii 20000536	C-GACCCAA-T	GGCAC	AAGAT-TG	CCCTCGA
A. arctocalyx	C-GACCCAA-T			
A. chrysanthus	T-GACCCAA-T			
A. parvifolius 19881451 A. parvifolius 19671069	T-GACCCAA-T			
A. radicans 19622826	T-GACCCAA-T			
A. radicans 19672224	T-GACCCAA-T			
A. argentii	C-GACCCAA-T	GGCAC	AAGAT-TG	CCCTCGA
A. magnificus	C-GACCCAA-T			
A. malulidii 19980282	C-GACCCAA-T			
A. malulidii 19980283 A. siphonanthus	C-GACCCAA-T C-GACCCAA-T			
A. aff. siphonanthus	C-GACCCAA-T			
A. speciosus	C-GACCCAA-T			
A. guttatus	C-GACCCAA-T			
A. pachyanthus	C-GACCCAA-C			
A. longicaulis 19672218	C-GACCCAA-T			
A. longicaulis 20001430 A. albidus	C-GACCCAA-T			
A. sp.nov.20000512	C-GACCCAA-T			
A. viridiflorus 20000332	C-GACCCAA-T			
A. viridiflorus 20021227	C-GACCCAA-T			
A. fecundus	C-GACCCAA-T			
A. fulgens 19900384 A. fulgens 20002032	C-GACCCAA-T			
A. angustifolius	C-AACCCAA-T			
A. fruticosus	C-GACCCAA-T			
A. buxifolius	G-GACCCAA-TT	GGCATAA	ATAAGATCTG	CCCtCGA
A. ceylanicus	C-GACCCAA-T			
A. bracteatus	C-GACCCAA-T C-GACCCAAG			
A. humilis A. hildebrandii AY047040	C-GACCCAA-C			
A. hildebrandii 19991628	C-GACCCAA-C			
A. gracilis 19802575	G-GACCCAG-C		AAGTT-CG	CCCTCGA
A. gracilis 19821970	G-GACCCAG-C			
A. hosseusii	C-GACCCAA-T			
A. hookeri A. macranthus	C-GACCCAA-T			
A. parviflorus 19671067	C-GACCCAA-T			
A. aff. parviflorus 19672220				
A. mimetes	C-GACCCAA-T	GGCAC	AAGAT-TG	CCCTCGA
A. sikkimensis	C-GACCCAA-T			
A. arfakensis	C-GACCCAA-T			
A. austroyunnanensis A. lineatus 19970613	C-GACCCAA-T C-GACCCAA-T			
A. Lineatus 19970613	C-GACCCAA-T			
A. pachytrichus	T-GACCCAA-T			
A. pseudohybridus	C-AACCCAA-T	GGCAC	AAGAT-TG	-CCGCCCTCGA
A. batakiorum	C-GACCCAA-T			
A. garrettii	G-GACCCAA-C			
A. acuminatus 19991496 A. acuminatus 19991444	C-GACCCAA-T			
A. myrmecophilus	C-GACCCAA-T			
A. sp. 00171	C-GACCCAA-T			
A. viridiflorus 20000228	C-GACCCAA-T	GGCAC	AAGAT-TG	CCCTCGA
A. andersonii	C-GACCCAA-C		AAGAT-TG	CCCACGA

Fig. 25 (continued)

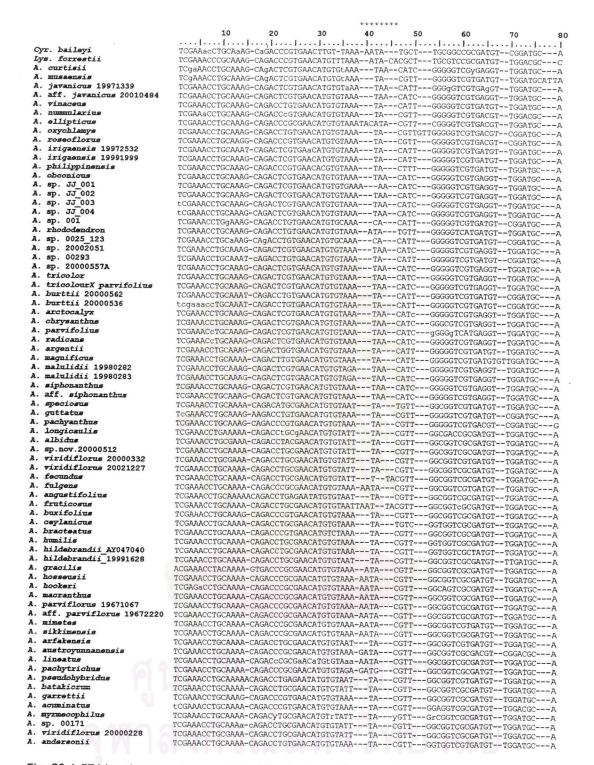


Fig. 26 A 571 bp character-taxon matrix of 77 Aeschynanthus taxa based on ITS sequences. Gap symbol (-) indicates insertion or deletion at the site. ? symbol shows missing nucleotide data. Asterisks * represent excluded sites from analyses.

			90	100	110	120	130	140	150	160
			.1				111.	1		1 1
Cy	r. baileyi	TTT	GCGTCCA	ACCAACAT	CACGACCC	TGAC	CCCAA	AGTGGCGCAA	GTCGTTG	CTCGGG-C
	s. forrestii						CACCCCAC			
	curtisii						CCCA#			
	musaensis javanicus 19971339						CCCA			
	aff. javanious 20010484						CCCA			
	vinaceus						CCCAA			
	nummularius						CCcGAC-CCCAC			
A.	ellipticus						CCCCAC			
	oxychlamys						CTCGACCCCCAC			
	roseoflorus						CCCA			
	irigaensis 19972532 irigaensis 19991999						CCCA			
	philippinensis						CCCA			
	obconicus						CCCAF			
	sp. JJ_001	TTT	GTGT	-CCAGCAT	CACGACCI	CGAC	CCCA	AGTGGCTCAA	GTCG	CTTGGG-A
A.	sp. JJ 002						CCCAA			
	sp. JJ_003						CCCAA			
	sp. JJ_004						CCCAA			
	sp. 001						CCCA			
	rhododendron						CCCAA			
	sp. 0025_123 sp. 20002051						CCCA			
	sp. 00293						TCCA			
	sp. 20000557A						CCCA			
	tricolor	TTT	GTGT	-CCAGCAT	CACGGCCT	CGAC	CCCA	AGTGGCGCAA	GTCG	CTTGGG-A
A.	tricolourX parvifolius	TTT	GTGT	-CCAGCAT	CACGACCT	CGAC	CCCAA	AGTGGCGCAA	GTCG	CTTGGG-A
A.	burttii 20000562						TCCA			
	burttii 20000536						TCCA			
	arctocalyx						CCCA			
	chrysanthus						CCCAA			
	parvifolius radicans						CCCA			
	argentii						CCCA			
	magnificus						CCCAA			
	malulidii 19980282						CCCA/			
A.	malulidii 19980283						CCCA			
	siphonanthus						CCCAA			
	aff. siphonanthus						CCCAA			
	speciosus						CCCCA			
	guttatus						CCCG/ CCCG/			
	pachyanthus longicaulis						CCCCGA			
	albidus						CCCCG			
	sp.nov.20000512						CCCCGA			
A.	viridiflorus 20000332	TTT	GAGT	-CCAGCGT	CACGGCCT	CGAC	CCCCGA	AGTGGCGAGA	GTTG	CTTGGG-A
A.	viridiflorus 20021227						CCCCG#			
	fecundus						CCCCGA			
	fulgens						TACCA			
	angustifolius fruticosus						CCCCAA			
	buxifolius						CCCCG			
	ceylanicus						GTCCCCCCA			
	bracteatus						CCCG#			
A.	humilis	TTTTT-	GAGT	-CTAGCAT	-CACGGCCT	CGAC	CCCCCAA	AGTGGCGCGA	GTTT	CTTGGG-A
	hildebrandii_AY047040						CCCCA			
	hildebrandii 19991628						A			
	gracilis						CTCCCA			
	hosseusii hookeri						TCCCA			
	macranthus						TCCCA			
	parviflorus 19671067						TCCCA			
	aff. parviflorus 19672220						TCCCA			
	mimetes						TACCA			
A.	sikkimensis	TTTTT-	GAGT	-CCAGCAT	CACGGCCT	CGAC	TCCCAA	AGTGGCGCGA	GTTG	CTTGGG-A
A.	arfakensis	TTTG	ATGAGT	-CCAGCAT	CACGGbCT	CGAC	CCCCAA	GTGGCGAGA	GTTG	CTTGGG-A
	austroyunnanensis						TCCCAA			
	lineatus						TCCCAA			
	pachytrichus						TCCCA			
	pseudohybridus batakiorum						CCCCAF			
	garrettii						CCCCG/			
	acuminatus						CCCCAF			
	myrmecophilus						CCCCGA			
	sp. 00171						CCCCGA			
A.	viridiflorus 20000228						CCCCGA			
A.	andersonii	TTTTT-	GAGT	-CTAGCAT	CACGGCCI	CGACCCCC	CCCcAA	AGTGGCGcGA	GTTT	CTTGGG-A

Fig. 26 (continued)

		170	180	190	200	210	220	230	240
			1	1	1				1
	T. baileyi	GTGCTAACA	ACCTCTCG	GCGCGGCAAG	CGCCAAGGAAA	ATCATATCGA	ACGCCTCTCCC	TCACGGTGCC	CG-TG
	s. forrestii curtisii	GTGCTAAC-	CACTCG	GCGCGGAAAG	CGCCAAGGAAA	ACCATACCGA	ACGCCTCTCCC	TCCTGGTGCC	CG-TG
	musaensis	GTACTAAA- GTACTAAC-	CICICG	GCGCGGCAAG GCGCGCAAG	CCCAAGGAAA	ACCGTAYTGA	ACACCTCTCCC	TCTCrGTGCT	rA
	javanicus 19971339	GTACTAAA-	CTCTCG	GCGCGGCAAG	CGCCAAGGAAA	ACCGTATEGA	ACACCTCTCC	TCTTGGTGCT	rΔ
A.	aff. javanicus 20010484	GTACTAAA-	CTCTCG	GCGCGGCAAG	CGCCAAGGAAA	ACCGTATCGA	ACACCTCTCC	TCTCGGTGCT	A
	vinaceus	GTACTAAA-	CTCTCG	GCGCGGTAAG	CGCCAAGGAAA	ACCATATTGA	ACACCTCTCC	TCTCGGTGCT	rG
	nummularius ellipticus	GTACTAAC-	CTCACG	GCGCGGCAAG	CGCCAAGGAAA	CCGTATCGA	ACACCTCTCC	TCTCGGTGCT	rG
	oxychlamys	GTTACTAAC- GTACTAAC-	CTCTCG	GCGCGGCAAG(CCCAAGGAAA	ACCGTATCGA	ACACCTCTCCC	TCTCGGTGCT	rG
	roseoflorus	GTACTAAC-	CTCTCG	GCGCGGCAAG	CGCCAAGGAAA	CCGTATCGA	ACACCTCTCCC	TCTTGGTGCT	G
	irigaensis 19972532	GTTCTAAC-	CTCTGG	GCGCGGCAAGC	CGCCAAGGAAAa	CCATATTGA	ACACCTCTCCG	TCTTGGTGCT	GTTG
	irigaensis 19991999	GTTCTAAC-	CTCTGG	GCGCGGCAAG	CGCCAAGGAAAA	ACCATATTGA	ACACCTCTCCC	TCTTGGTGCT	GTTG
	philippinensis obconicus	GTACTAAC-	CTCTCG	GCGCGGCAAG	CGCCAAGGAAA	ACCGTATCGA	ACACCTCTCCG	TCCCGGTGCT	G
	sp. JJ 001	GTACTAAA- GTACTAAA-	CTCTCGC	SCGCGGCAAG(CGCCAAGGAAAA	CCGTATEGA	ACACCTCTCCC	TCTCGGTGCT	A
	sp. JJ 002	GTACTAAA-	CTCTCG	GCGCGGCAAG	CGCCAAGGAAA	CCGTATCGA	ACACCTCTCCG	TCTCGGTGCT	A
	sp. JJ_003	GTACTAAA-	CTCTCG	GCGCGGCAAG	CGCCAAGGAAAA	CCGTATCGA	ACACCTCTCCG	TCTCGGTGCT	'A
	sp. JJ_004	GTACTAAA-	CTCTCG	GCGCGGCAAGG	CGCCAAGGAAAA	CCGTATCGA	ACACCTCTCCG	TCTCGGTGCT	'A
	sp. 001 rhododendron	GTACTAAa-	CTCTCGC	GCGCGGCAaGC	CGCCAaGGAAAA	CCATATCGA	ACACCTCTCCG	TCTCGGTGCT	'A
	sp. 0025 123	GTACTAAC- GTACTAAA-	CICICGC	CCCCCCC ACC	CCCAAGGAAAA	CCATACTGA	ACATCTCTCCG	TCTTGGTGCT	'G
	sp. 20002051	GTACTAAA-	CTCTCGC	GCGCGGCAAGO	CGCCAAGGAAA	CCGTATCGA	ACACCTCTCCG	TCTCGGTGCT	A
	sp. 00293	GTACTAAC-	CTCTCGC	GCGCGGCAAGC	CGCCAAGGAAAA	CCGTATTGA	ACACMTCTCCG	TCCCGGTGCT	'G
	sp. 20000557A	GTACTAAA-	CTCTCGC	GCGCGGCAAGC	CGCCAAGGAAAA	CCGTATCGA	ACACCTCTCCG	TCTCGGTGCT	A
	tricolor	GTACTAAA-	CTCTCGC	GCGCGGCAAG	CGCCAAGGAAAT	CCGTATTGA	ACACCTCTCCG	TCTCGGTGCT	'A
	tricolourX parvifolius burttii 20000562	GTACTAAA-	CTCTCGC	CCCCCAAGC	CGCCAAGGAAAA	CCGTATCGA	ACACCTCTCCG	ICTCGGTGCT	A
	burttii 20000536	GTACTAAC-	CTCTCGC	GCGCGGCAAGC	CGCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	TOTOGGTGCT	G
A.	arctocalyx	GTACTAAA-	CTCTCGC	GCGCGGCAAGC	CGCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	TCTCGGTGCT	'A
	chrysanthus	GTACTAAA-	CTCTCGG	GCGCGGCAAGC	CGCCAAGGAAAA	TCGTATAGA	ACACCTCTCCG	TCTCGGTGCT	A
	parvifolius	GTACTAAA-	CTCTCGC	GCGCGGCAAGC	CGCCAAGGAAAA	CCGTATCGA	ACACCTCtCCG	ICTCGGTGCT	A
	radicans argentii	GTACTAAA-	CTCTCGC	CCCCCCAAGC	CCCAAGGAAAA	CCGTATCGA	ACACCTCTCCG	TCTCGGTGCT	A
	magnificus	GTACTAAA-	CTCTCGC	CGCGGTAAGC	CCCAAGGAAAA	CCATATTGA	ACACCTCTCCG	TCTCGGTGCT	G
	malulidii 19980282	GTACTAAA-	CTCTCGG	GCGCGGCAAGC	GCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	TCTCGGTGCT	A
	malulidii 19980283	GTACTAAA-	CTCTCGC	GCGCGGCAAGC	CGCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	TCTCGGTGCT	A
	siphonanthus	GTACTAAA-	CTCTCGG	GCGCGGCAAGC	CGCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	TCTCGGTGCT	A
	aff. siphonanthus speciosus	GTACTAAA-	CTCTCGC	GCGCGGCAAGC	GCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	ICTCGGTGCT	A
	guttatus	GTACTAAC	CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCCTATCCA	ACACCTCTCCG	CTCCGGTGCT-	G
	pachyanthus	GTACTAAC-	CTCTCGG	CGCGGCAAGC	ACCAAGGAAAA	CCTTATCGA	ACACCTCTCCG	CTTGGTGTT	GCTG
	longicaulis	GTACTAAC-	CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTGCG	GCCTGGTGCT	GG
	albidus	GTACTAAC	CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTGCG	GCCTGGTGCT	GG
	sp.nov.20000512 viridiflorus 20000332	GTACTAAC-	CTCTCGG	CCCCCCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTGCG	CCTGGTGCT	GG
	viridiflorus 20021227	GTACTAAC GTACTAAC	CTCTCGG	CCCCCCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTGCG	CCTGGTGCT	GG
	fecundus	GTACTAAC	CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTATTGA	ACACCTCTGCG	CCTGCTGCTC	GG
	fulgens	GTACTACTAAC	CTCTCGG	CGCGGCAAGT	GCCAAGGAAAA	CCGTACTGA	ACACCTCTCCG	GCCCGGTGCT.	G
	angustifolius	GTACTAAC	CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTATTGA	ACGCCTCTCCG	CTCTGGTGCT-	G
	fruticosus buxifolius	GTACTAACGGGAGTACTAAC	CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	TCCGGTGCT-	G
	ceylanicus	GTACTAAC-	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTATCGA	ACACCTCTCCG	CCTGGTGCT-	G
A.	bracteatus	GTACTAAC	CACTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCTTATTGA	ACACCTCTCCG	CCTGGTGCT	G
	humilis	GTACTAAC	CTCTGGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTATTGA	ACACCTCTCCG	SCCTGGTGCT-	G
	hildebrandii AY047040	GTACTAAC	ATCTGGG	CGCGGCAAGC	GCCAAGGAAAA	CCGT-TTGA	ACACCTCTCCG	CCTGGTGCT-	G
	hildebrandii_19991628 gracilis	GTACTAAA	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGTA	ACACCTCTCCG	CCTGGTGCT-	G
	hosseusii	GTACTACTA	ACCTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTCCGG	CCCGGTGCT-	G
A.	hookeri	GTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CTGTATTGA	ACACCTCTCCG	CCTGGTGCT-	G
	macranthus	GTACTACTAAC	CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTCCG	CCCGGTGCT-	G
	parviflorus 19671067 aff. parviflorus 19672220	GTACTACTAAC							
	mimetes	GTACTACTAAC GTACTACTAAC							
A.	sikkimensis	GTACTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTCCGC	CCCGGTGCT-	G
	arfakensis	GTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA;	yCGTATYGAA	ACACCTCTCCGC	TCCGGTGCT-	G
	austroyunnanensis	GTACCACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	CACCTCTCCG	CCTGGTGCT-	G
	lineatus pachytrichus	GTACTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	ACACCTCTCCGG	CCCGGTGTT-	G
	pseudohybridus	GTACCACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAAI	CCTATTCA	ACACCTCTCCG(CCCGGTGCC-	G
	batakiorum	GTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGA	CACCTCTCCGC	CCTGGTGCT-	3G
A.	garrettii	GTACTAAC	-CTCTCGG	CGCGGCAA.GC	GCCAAGGAAAA	CCGTATCGAA	CACCTCTCCGG	CCTGGTGCT-	G
	acuminatus	GTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTATTGAA	CACCTCTCCG	CCTGGTGCT-	G
	myrmecophilus	GTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CCGTACTGAA	CACCTCTGCGC	CCTGGTGCTC	GG
	sp. 00171 viridiflorus 20000228	GTACTAAC	-CTCTCGG	CGCGGCAAGC	GCCAAGGAAAA	CGTACTGAA	CACCTCTGCGG	CCTGGTGCTG	GG
	andersonii	GTaCTAaC	-CTCTGGG	CGCGGCaAGC	GCCaAGGAAAA	CCGTATTGAL	CACCECTCCCC	CCTGGTGCTC	G
								- 3.001001-	3
Fi	g. 26 (continued)								
1 16	. 20 (COMMINUEU)								

A. andersonii

Fig. 26 (continued)

	250 260 270 280 290 300 310
yr. baileyi	CGCGGTGCGC-agGaCTTGACGAGGAGCG-TCCATTGAATAGATATTATCTCGTCGCC-CCTTCCCC-CAA-CAT
ys. forrestii	CGCTGTGTCG-AGGACGTGATGAGTAGCG-CCTATCGAATA-A-ATGTCTCTTCGCC-CCCCCTCAACACA
. curtisii	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGAT??-ATCTCGTCGCC-CCAATCCGCCAA-TGT
. musaensis	TGAGGTACCC-AGGACGTGATGAGGAGTT-TCTATTGAATAGATATCTCGTCGAC-CCCCTCC-CCAAATA
. javanicus 19971339	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATcGAATA-AGATATCTCGTCGCC-CCACTCCGCCAA-TG
. aff. javanicus 20010484	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCAATCCGCCAA-TG
. vinaceus	TGCGGTACCAGGACGTGATGAGGAGTG-TCTATTGAATA-AGATATCTCGTCGCC-CCCCTCCCCGAA-TA
. nummularius	TGCGGTACTC-gGGACgTGACGAGGAGTG-TCtATTGAAtAGATATcTcgTCGCC-CCCCTCCCCATA-TA
. ellipticus	TGCGGTACCC-GGGACGTGACGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCCTCCCCATA-TA
. oxychlamys	TGCGGTACCC-AGGACGCGACGAGGAGTG-TCTATTGAATAGATATTATCTCGTCGCC-CCCCTCCCCAAA-TA
roseoflorus	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCCTCCCCAAA-TAT
irigaensis 19972532	TGYGGTACCC-AGGATGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CTCCTCCCCAAA-TAT
. irigaensis 19991999	TGCGGTACCC-AGGATGTGATGAGGAGTG-TCTATCGAATAGATATCTCGTCGCC-CTCTTCCCCAAA-TA
philippinensis	TGCGGTGCCC-AGGACGTGATGAGGAGTGGTCTATCGAATAGATATATCGTCGCC-CCCCTCCCCAAA-ACA
obconicus	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCAmTCCgCCAA-TG
sp. JJ_001	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCGCCAAATG
sp. JJ_002	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAata-agatatctcgtCGCC-CCACTCCGCCAA-TG
sp. JJ_003	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTatcgaata-agatatctcgtcgcc-ccaCTCCGCCAA-TGT
sp. JJ_004	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTatcgaata-agatatctcgtcgcc-ccaCTCCGCCAA-TGT
sp. 001	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAaTA-AGATATCTCGTCGCC-CCCCTCCGCGAA-TAT
rhododendron	TGCGGTACCC-AGGATGTGATGAGGAATCTATTTAATAGATATCTCGTCGCC-CCCTCCCCAGA-TAT
sp. 0025_123	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCGCGAA-TAT
sp. 20002051	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATT-ATCTCGTCGCC-CCACTCCGCCAA-TGT
sp. 00293	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATAtcttgtcgCC?CCCCTCCCCAAA-TAT
sp. 20000557A	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCACTCCGCCAA-TGT
tricolor	TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCACGAA-TGT
tricolourX parvifolius	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATatctcgtcgCC-CCACTCCGCCAA-TGT
burttii 20000562	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATATCTCGTCGCC-CCCCTCCCCAAA-TAT
burttii 20000536	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATTGaatagatatATCTCGTCGCC-CCCTTCCCCAAA-TAT
arctocalyx	TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCGCGAA-TGT
chrysanthus	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATGGAATA-AGATATCTCGTCGCC-CCACTCCGCCAA-TGT
parvifolius	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTaTCGAaTA-AGATATCTCGTCGCC-CCACTCCGCCAA-TGT
radicans	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCACTCCGCCAA-TGT
argentii	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCCATTGAATA-AGATATCTCGTCGCC-CCCCTTCCCAAT-TAT
magnificus	TGCGGTACCAGGACGTGATGAGGAGTG-TCTATTGAATA-AGATATCTCGTCGCC-CCCCTCCCCAAA-TAT
malulidii 19980282	
malulidii 19980283	TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCACGAA-TGT TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCACGAA-TGT
siphonanthus	TOTOCTRICOS - NOSACOTOS TOTALOS ANTA-AGAT ATCTOCACO - COCONOCOS
aff. siphonanthus	TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCGCGAA-TGT TGTGGTACCC-AGGACGTGATGAGGAGTG-TCTATCGAATA-AGATATCTCGTCGCC-CCCCTCCACGAA-TGT
speciosus	
guttatus	TGCAGTACCCCAGGACGTGATGAGGAGTG-TCTATTGAATAGATATATCTCGTCGTC-CCCCTCCCCAAA-TAT
pachyanthus	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCATCGCC-CCCCTCCCCATA-TAT
	TGCGGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCCTCCCCACA-TAT
longicaulis	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGGCGTC-TCCCTCCCTATG-TAT
albidus	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGGCGTC-TCCCTCCCTATG-TAT
sp.nov.20000512	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGGCGTC-TCCCTCCCTATA-TAT
viridiflorus 20000332	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATATCACGGCG-TCTCCCTCCCTA-TAT
viridiflorus 20021227	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATatcacggcgtC-TCCCTCCCTATA-TAT
fecundus	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGGCGTC-TCTCTCCCTATA-TAT
fulgens	TGCAGCACCC-GGGACGCGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCCCCAAA-TAT
angustifolius	TGCAGTACCCCAGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGTC-CCCCCCAAA-TAT
fruticosus	TGCAGTACCCAAGAACGTGATGAGGAATG-TCTATCGAATAGATATCTCGTCGTC-CCCCTCCCCAAA-TAT
buxifolius	TGCGGCACCC-AGGACGCGACGAGGAGTG-TCTATCGAATAGATAT-ATCTCGTCGCCCCCCCCCC
ceylanicus	TGCAGTACCT-AGGACGTGATGAGGAGTG-TCTATTGAATATAGATATCTCGTCGCC-TCCCTACCCAAA-TAT
bracteatus	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCCTCCCCAAA-ATT
humilis	TGCAGTACCG-AGGACGTGATGAGGAGTG-TCTATTGCATAGATATTCCGTCGCC-CCCCTCCCCAAA-TAT
hildebrandii AY047040	TGCAGTACCA-AGGACGTGATGAGTAGTG-TCTATTGCATAGATATCTCGTCGCC-CCACTCCCCAAA-TAT
hildebrandii_19991628	TGCATTGGCC-AGGACGTGATGAGGAGTG-TGTATTGCatagatat-ATCTCGTCGCC-CCCCTCCCCAAA-TAT
gracilis	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGCATAGATATCTCGTCGCC-CCCCTCCCGAAA-TAT
hosseusii	TGCAGCACCC-AGGACGTGATGAGGAGTG-TCtattgaatagatatctcgtcgcc-CCCCTCCCCAAA-TAT
hookeri	TGCAgTAccc-AGGACGTGACGAGGAGTG-TCTATTGCATAGATAT-ATCTCGCCGCC-CCCCTCCCCAAA-TAT
macranthus	TGCAGCACCC-GGGACGCGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCTCCCCAAA-TAT
parviflorus 19671067	TGCAcCACCC-AGGACGTGATGAGGAGGG-TCTATTGAATAAATAT-atctcgtcgcc-ccccTCCCCAAA-TAT
aff. parviflorus 19672220	TGCAGCACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATAT-ATCTCGTCGCC-CCCCTCCCCAAA-TAT
mimetes	TGCAGCACCC-GGGACGCGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCTCCCCAAA-TAT
sikkimensis	TGCAGCACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCCTCCCCAAA-TAT
arfakensis	TGCAGTACCCCAGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGTC-CCCCTCCTCAAA-TAT
austroyunnanensis	TGCAGTACCC-AGGACGTGACGAGGAGTG-TCTATCGAATAGATATCTCGTCGCCCCCCCCCC
lineatus	TGCAGCACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGTCGCC-CCCCTCCcCAAA-TAT
pachytrichus	TGCAGCACCC-AGGACGTGATGAGGAGTG-TCTATTGAGTAGATATCTCGTCGCC-CCCCTCCCCAAA-TAT
pseudohybridus	TGCAGTACCCAAGGACGTGATGAGGAGTG-TCTATTGAATAGATAT-ATCTCGTCGTC-CACCTCCCCAAA-TAT
batakiorum	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGGCGTC-TCCCTCCCTATG-TAT
garrettii	TGCGGCACCC-AGGACGCGACGAGGAGTG-TCTATCGAATAGATAT-ATCTCGTCGCCCCCCCCCC
acuminatus	TGCAGTACCC-AGGACGTGACGAGGAGTG-TCTATTGAATAGATAT-ATCTCGTCGCC-CCCCTCCCCAAA-TATC
myrmecophilus	TGCAGTACCC-AGGACGTGATGAGGAGGTG-TCTATTGAATAGATATCTCGGCGTC-TCCCTCCCTATA-TAT
sp. 00171	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGGCGTC-TCCCTCCCTATA-TATC
viridiflorus 20000228	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTATTGAATAGATATCTCGGGGTC-TCCCTCCCTATA-TATT
andersonii	TGCAGTACCC-AGGACGTGATGAGGAGTG-TCTALTGAATAGATATCACGGCGTC-TCCCTCCCTATA-TATC TGCAGTACCG-AGGACGTGATGAGGAGTG-TCTALTGCAtAGATA-ATCCCGTCGCC-CCCCTCCCCAAA-TATC

Fig. 26 (continued)

		330 340 350 360 370 380 390 400
	(A)	
C	yr. baileyi	-TCTTCC-ACACTAA-GAGTGCCGGGAG-ACGATACATACGAAGGAGGGGCGCGGA
	ys. forrestii	-TCTTCC-ACACTCAAAGTGCCGGGAG-ACGATGCTAACGAAGCGGGGGTGCGGA
	curtisii	GT-TC-CCANANCEGGGGGIGGGA
	. musaensis	GTTC-CCTrATTCAGTCAAA-GTGTTGGGGG-ACGATGCATACCAAGGAGGAGGGACGGA
	. javanicus 19971339	GTTC-CCCGACTCGGTCAA-GGTGTCGGGGG-ACGATGCATACCAAGGAGGAGGGACGGA
		GT-TC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCrTACCAAGGAGGAGGGACGGA
	aff. javanicus 20010484	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACGATGCATACCAAGGAGGAGGGACGGA
	vinaceus	GTTC-CtTGATTCACTCAAA-GTGTTGGGGG-ACGATGCATATCAAGGAGGAGGGACGGA
	. nummularius	GTTC-CCCGACTCGGTCAAAGGTqTCGGGGGGACGATGCATACGGAGGAGGAGGGACGGA
	. ellipticus	ATTC-CCCGGCTCGGTCAAAGGTGTCGGGGGGACGATGCATACGGAGGAGGAGGGACGCA
A.	oxychlamys	GTTC-CCCGGCCCAGTCAAAGGTGTCGGGGGGACGATGCATTCCGAGGAGGAGGGACGGA
A.	roseoflorus	GTTC-CCCGACTCGGTCAAAGGTGTCGGGGGACGATGCATACCAAGGAGGAGGGACGGA
A.	irigaensis 19972532	GT-TC-CCCGATTCAGTCAAA-GTGTTGGGGG-ACGATGCGTACCAAGGATGAGGGACGGA
	irigaensis 19991999	GTTC-CCCGATTCAGTCAAA-GTGTTGGGGG-ACGATGCATACCAAGGATGAGGGACGGA
	philippinensis	CT-TC-CCTCG-ATTCAGTCAAA-GTGTCGGGGG-ACGATGCATCATACCAAGGAGGA-GGGACGGA
	obconicus	CT TC CC TG ATTCAGTCAAA-GTGTCGGGGGCACGATGCATACCAAGGAGGAGGGACGGA
	sp. JJ 001	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACrATGCaTACCAAGGAGGAGGGACGGA
	sp. JJ 002	GTTC-CCTGATTTCTGTCAAA-GTGTTGGGGG-ACGATGCATACCAAGGAGGA-GG-GACGGA
		GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTATCAAGGAGGA-GG-GACGGA
	sp. JJ_003	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGA-GG-GACGGA
	sp. JJ_004	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGA-GG-GACGGA
A.	sp. 001	gTTC-CCCGATTCAGTCAAA-GTGTTGGGGG-ATGATGCATaCCAAGGAGGAGGGACGGA
A.	rhododendron	-CTCCCCTGACTCGGTCAAA-GTGTCGGGGG-ACGATGCATAGCAAGGAGGAGGGACGGA
A.	sp. 0025 123	GT-TC-CCTGATTCAGTCAAAAGTGTTGGGGG-ATGATGCATACCAAGGAGGAGGGACGGA
A.	sp. 20002051	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGAGGGACGGA
	sp. 00293	GT-TC-CCCGATTAAGTCAAA-TTGTTGGGGG-ACGATGCATACCAAGGAGGAGGGACGGA
	sp. 20000557A	CT TC CC AGARCANA CTOTTO CCC AGARCANACAGGAGA - GGGACGGA
	tricolor	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGAGGGACGGA
		GTTC-CCTGATTCAATCAAA-GTTTTGGGGG-ATGATGCATACCGAGGAGGAA-GGGACGGA
	tricolourX parvifolius	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGAG-GGGACGGA
	burttii 20000562	GTTC-CCCGATTAAGTCAAA-TTGTTGGGGG-ACGATGCATACCAAGGAGGAGGGACGGA
	burttii 20000536	GTTC-CCCGATTAAGTCAAA-TTGTTGGGGG-ACGATGCATACCAAGGAGGAG-GGGAGGGA
A.	arctocalyx	GTTC-CCTGATTCAATCAAA-GTTTTGGGGG-ATGATGCATACCGAGGAGGAA-GGGACGGA
A.	chrysanthus	GT-TC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGAGGGACGGA
A.	parvifolius	GTTC-CCTGATTCAGTCAAA-gTGTTGGGGG-ACAATGCGTACCAAGGAGGAGGGACGGA
	radicans	GTTC-CCTGATTCAGTCAAA-GTGTTGGGGG-ACAATGCGTACCAAGGAGGAGGGACGGA
	argentii	GAGGAGGAGGGACGGA
	magnificus	CT-TC-CC-TG ARREST CECANA CECA
	malulidii 19980282	GTTC-CCTGATTCACTCAAA-GTGTTGGGGG-ACGATGCATATCAAGGAGGAGGGACGGA
		GTTC-CCTGATTCAATCAAA-GTTTTGGGGG-ATGATGCATACCGAGGAGGAA-GGGACGGA
	malulidii 19980283	GTTC-CCTGATTCAATCAAA-GTTTTGGGGG-ATGATGCATACCGAGGAGGAA-GGGAEGGA
	siphonanthus	GTTC-CCTGATTCAATCAAA-GTTTTGGGGG-ATGATGCATACCGAGGAGGAA-GGGACGGA
	aff. siphonanthus	GTTC-CCTGATTCAATCAAA-GTTTTGGGGG-ATGATGCATACCGAGGAGGAA-GGGACGGA
A.	speciosus	GTTCGCCGACACTGACCATAATTGGTGTCGGGAGAAGATGCATACGGAGGAGGGACGGA
A.	guttatus	GTGTTC-CCCG-CCTCAGTCAAGGTGTCGGGGGATGATGCATACCAAGGAGGAGGGACAGA
A.	pachyanthus	GTGTTC-CCCG-CCTCAGTCAAGGTGTCGGGGGGACGATGCATACCAAGGAGGAGGGACGCA
A.	longicaulis	GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
	albidus	GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
	sp.nov.20000512	GTTCGCCGACATTGACCA-T-AAT-TGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
	viridiflorus 20000332	TECHNOLOGICAL TONG CONTROL OF THE TECHNOLOGICAL CONTROL OF THE TECHNOLOGIC
		TCGTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
	viridiflorus 20021227	GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
	fecundus	GTTCGCCGACATTGACCA-T-AAT-TGGTGTCGGGAGATGATGCATACGGAGGAGGGACGGA
	fulgens	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
	angustifolius	GTTCGTCGACACTGACCA-T-AAT-TGGTGTCGGGCGACGATGCATATGGAAGAGGGACGGA
A.	fruticosus	GTTCGCCGACACTGACCA-T-AAT-TGGTGTTTTGGAGACGATGCATACGGAGGAGGGACGGA
A.	buxifolius	GTTCCCCGAGGGAGGAGGGACGGA
A	ceylanicus	GTTCGCCGACACTGACCA-T-AAGTGGTGTCTGGAGACGATGCATACGAAGGAGGAGGGACGGA
A.	bracteatus	GTTCGCCGACACTGACCA-T-AAGTGGTGTCGGGCGACGATGCATACGAAGGAGGAGGGGCGGA
A.	humilis	GTTCGTCGACACTGGCCA-T-AAATGGTGGTGTTCGGTGACGATGCATACCAAGGCGGAG-GGGACGGA
A.	hildebrandii AY047040	GTTCGTCGACACTGACCA-T-AAATGGTGGTGTCGGGTGACGATGCATACGAAGGTGGAGCGGGACGGA
	hildebrandii 19991628	GT-TCGTTGACACTGACTA-T-AAACGGCGGTGTCACGTGATGATGCATACGAAGGCGGAG-GGGACGGA
	gracilis	GT-TCGTCGACACTGGCCA-T-AAATGGTGGTGTCAGGTGGCGGTGCATACGAAGGCGGAG-GGGACGGA
	hosseusii	CTTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
	hookeri	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAG-GGACGG-A
		GTTCGCCGACACTGACCA-T-AAGTGGCGGTGTCGGGAGACGATGCATACGAAGGAGAAGGGACGGA
	macranthus	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
	parviflorus 19671067	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
	aff. parviflorus 19672220	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
	mimetes	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
A.	sikkimensis	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
A.	arfakensis	GTTTGCCGACACTGACCA-T-AAT?-TGGTGTTGGGAGACGATGCATATGGAGGAGGGACGGA
	austroyunnanensis	GTTCGCCGACACTGACCA-T-AAGTGGCGGTGTCGGGAGACGATGCCATACGAAGGAGGAGGGACGGA
	lineatus	GTTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCCGGGAGGCGACGATGCATACGAAGGAGGA?-GGGACGGA
	pachytrichus	
	pseudohybridus	GCTCGCCGACACTGACCAT-CA-T-AAGTGGTGGTGCCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
		GTTCGCCGACACTGACCA-T-AATTGGTGTTGTGCGACGATGCATATGGAGGAGGGACGGA
	batakiorum	GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
	garrettii	GTTCCCCGACTTACGAAGGAGGAGGGACGAA
A.	acuminatus	GTCGGCCGACACTGACCA-T-AAGTGGTGTCGGGAGACGATGCATACGAAGGAGGAGGGACGGA
	myrmecophilus	GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
A.	sp. 00171	GTTCGCCGACATTGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
A.	viridiflorus 20000228	GTTCGCCGACATCGACCA-T-AATTGGTGTCGGGAGACGATGCATACGGAGGAGGGACGGA
A.	andersonii	GTTCGTCGACACTGACCA-T-AAATGGTGGTGTTCGGTGACGATGCATACCAAGGCGGAGGGGACGG
		300011000

Fig. 26 (continued)

		410 420 430 440 450 460 470	4
C	r. baileyi	TATTGGCCTCCCGTTATCC-TTGCATAGCGGCCGGCCCAAATAACATGCCGTGGCGATGGATGTCA	
Ly	s. forrestii	TATTGGCCTCCCGTTATCCCTTGTGTGGCGGCCCGAATAGCATGCCGTGTCGACGTATATATGTCAC	CAC
A.	curtisii	CATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAL
A.	musaensis	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATA-TTAGTATACCGTGCCGATTGATGTCAC	CAC
A.	javanicus 19971339	TATTGGCCTCCCGTTATCC-AAGTATAGCGGcCGGCACAAATAGTATACCGTGTCGATTGATCTCA	CAC
A.	aff. javanicus 20010484	CATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
A.	vinaceus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATAACGTGTCGATTGATGTCAC	CAC
A.	nummularius	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATGCCGTGGTGATCGATGTCAC	CAC
A.	ellipticus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGCACAAATAGTATGCCGTGCCGATCGATGTCAC	CAC
A.	oxychlamys	TATTGGCCTCCCGTTATCC-AGGCATAGCGGCCGCACAAACAGTACACCGTGCTGATCGATGTACACCGTGC-TGATCGATGTACACCGTGCTGATCGATGTACACCGTGCTGATCGATGTACACCGTGCTGATCGATGTACACCGTGCTGATCGATGTACACCGTGCTGATCGAT	CAC
A.	roseoflorus	TATTGGCCTCCCGTTATCC-AAGCGTAgCGGCCGGCACAAATAGTATACCGTGCTGATCGATGTCAC	CAC
A.	irigaensis 19972532	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CGC
	irigaensis 19991999	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
A.	philippinensis	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATGGTACACCGTGTCGATTGATGTCAC	CAC
	obconious	yATTGGCCTCCCGTTATCC-AAGyATAGCGGCyGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
A.	sp. JJ 001	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGGCAC	CAC
	sp. JJ 002	TATTGGCCTCCCGTTATCC-AAGTATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACI
A.	sp. JJ 003	TATTGGCCTCCCGTTATCC-AAGTATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
	sp. JJ 004	TATTGGCCTCCCGTTATCC-AAGTATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
	sp. 001	TATTGGCCTCCCGTTatCC-AAGCATAGCGGCCGGCACAAATAGTGTACCGTGTCGATTGATGTCAC	CAC
	rhododendron	THITTGCCCTCCCCTTHITCC ANGCHINGCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	CAC
	sp. 0025 123	TATTGCCTCCCGTTATCC-AAGCATAGCGGCCGCCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
	sp. 20002051	TATTGGCCTCCCGTTATCC-AAGAATAGCGGCCGGCACAAATAGTGTACCGTGTCGATTGATGTCAC	CAC
	sp. 00293	TATTGGCCTCCGTTATCC-AAGTATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
	sp. 20000557A	TATTGGCCTCCGGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
	tricolor	TATTGGCCTCCCGTTATCC-AAGTATAGCGGCCGGCCCAAATAGTATACCGTGTCGATTGATGTCAC	CAC
		TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
	tricolourX parvifolius	TATTGGCCTCCCGTTATCC-AAGTATAACGGCCGGCACAAATAGTATACCGTGTCCATTGATGTCAC	CACO
	burttii 20000562	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACC
	burttii 20000536	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGCACAAATAGTATACCGTGTCGATTGATGTCAC	CAC
	arctocalyx	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACC
	chrysanthus	TATTGGCCTCCCGTTATCC-AAGTATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACC
	parvifolius	TATTGGCCCCCGTTATCC-AAGTATAGCGGCCGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACC
	radicans	TATTGGCCTCCCGTTATCC-AAGTATACCGGCCGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACC
A.	argentii	TATTGGCCTCCCGTTATCG-AAGCATAGCGGCCGGCACAAATAGTATGCCGTGTCGATTGATGTCAC	CATC
A.	magnificus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATAACGTGTCGATTGATGTCAC	CACC
A.	malulidii 19980282	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACC
A.	malulidii 19980283	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	CACC
A.	siphonanthus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	LACC
	aff. siphonanthus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGTCGATTGATGTCAC	JACC
	speciosus	TATTGGCCTCCCGTTATCC-AAGCATGGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTACAC	CACC
	guttatus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCTGGAACAAATAGTATACCGTGG-TAATTGATATCAC	CACC
	pachyanthus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATACCGTGCCGATTGATGTCAG	CACC
	longicaulis	TATTGGCCTCCCGTTATCT-GAGCATAGCGGCCGGCACAAATAAATAGTATGCCGTGTCGATGGATGTCAC	SACG
	albidus	TATTIGGCCTCCCTTATCT -CACCATACCGCCCCCCCCACAAATAAATAATATATCCGTGTTCGATGGATGTCAC	CACG
	sp.nov.20000512	TATTGGCCTCCCGTTATCT-GAGCATAGCGGCCGGCACAAATAAATAGTATGCCGTGTCGATGGATGTCAC	ATG
	viridiflorus 20000332	TATTGGTCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAAATAGTATGCCGTGTCGATGGATGTCAC	CACG
	viridiflorus 20021227	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAATAAATAGTATGCCGTGTCGATGGATGTCAC	CACG
	fecundus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAAATAGTATGCCGTGTCGATGGATGTCAC	CACG
	fulgens	TATTGGCCTCCCGTTATCG-GAGCATAGCGGCCGGCACAAATAAATAGTATGCCGTGTCGATGGATGTCAC	ACG
	angustifolius	TATTGGCCTCCCGTTATCC-AAGCGTAGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCAC	CACG
	fruticosus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCAC	CACG
		TATTGGCCTCCCGTTATCC-AAGCATGGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCAC	ACG
	buxifolius	TATTGGCCTCCCGTTATCC-AAGCATAgCGGCCGGCACAAATACTATGCCGTGTCGATGGACGTCACA	ACG
	ceylanicus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAATATGTCGTGTCGATGGATGTCAC	ACG
	bracteatus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCAC	TACC
	humilis	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCACA	ממחי
	hildebrandii_AY047040	TGTTGGCCTCCCGTTATCC-AAGCGTAGCGGCCGGCACAAATAGGTATGTTGTGTCGATGGATGTCACA	ACG
	hildebrandii_19991628	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATGCCGTGTCGATGCATGTCAC	DOC
	gracilis	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGGTATGCCGTGTTGCGATGGATGTCACI	ACC
	hosseusii	TATTGGCCTCCCGTTATCC-AAGCGTAGCGGCCGGCACAATAGTATGCCGTGTCGATGGATGTCACA	ACC
	hookeri	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAATAGTATGCCGTGTCGATGCATGTCACA	ACC
	macranthus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTAGGCCGTGTCGATGGATGTCAC	DOC
	parviflorus 19671067	TATTGGCCTCCCGTTATCC-AAGCGTAGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCACA	TACC
	aff. parviflorus 19672220	TATTGGCCTCCCGTTATCC-AAGCGTAGCGGCCGCACAAATAGTATGCCGTGTCGATGGATGTCACA	ACG
	mimetes	TATTGGCCTCCCGTTATCC-AAGCGTAGCGGCGCACAATAGTATGCCGTGTCGATGGATGTCACA	DOC
	sikkimensis	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAATAGTATGCCGTGTCGATGGATGTCACA	ACC
	arfakensis	TATTGGCCTCCCGTTATCC-AAGCATGGCGGCTGGCACAAATAGTATGCCGTGTCGATGGATGTCACA	ACG
	austroyunnanensis	TATTGGCCTCCCGTAATCC-AAGCATTGCGGCCGGCACAAATAGTAAGCCGTGTCGATCGATCTCACA	ACC
	lineatus	TATTGGCCTCCGTTATCC-AAGCATACGGCCGGCACAAATAGTATGCCGTCTCGATGGATGTCACA	ACG
	pachytrichus	TATTGGATC-AAGCATAGCCCCCCACAAAAA	ACG
	pseudohybridus	TATTGGATCC-AAGCATAGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCACA	AAG
	batakiorum	TATTGGCCTCCCGTTATCC-AATCATAGCGGCCGGCACAAATAGTATGCCGTGTCGATGGATGTCACA	ACG
	garrettii	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAAATAGTATGCCGTGTCGATGGATGTCACA	ACG
	acuminatus	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATACTATGCCGTGTCGATGGACGTCACA	ACC
		TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAGTATTCCGTGTCGATGGATGTCACA	ACC
	myrmecophilus	TATTGGCCTCCCGTTGTCC-AAGCATAGCGGCCGGCACAAATAAATAGTATGCVGTGTCGATGCATCTCACA	ACC
	sp. 00171	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAAATAAATAGTATGCCGTGTCGATGGATCTCACA	ACC
	viridiflorus 20000228	TATTGGCCTCCCGTTATCC-AAGCATAGCGGCCGGCACAATAAATAGTATGCCGTGTCGATGCATGTCACA	noc
		A THAT THE COORT COORT A COLUMN COORT COLUMN	950
	andersonii	ATATTGGCCTCCCGTTATCCAAGCATAGCGGCCGGCACAAATAGTATGCTGTGTCGATGGATGTCACA	ACG

Fig. 26 (continued)

		490	500	510	520	530	540	550	560
0	r. baileyi	ATACGTGGTGGC	COUNTY CATC	CTTCCACTTCCA	AAACTATO			1	
	rs. forrestii	ATACGTGGTGGC							
-	curtisii	ATATGTGGTGG							
	musaensis	ATATGTGGTGG-							
	javanicus 19971339	ATAYGTGGTGG							
	aff. javanicus 20010484	ATACGTGGTGG-							
	vinaceus	ATATGTGGTGG							
A.	nummularius	TTAAGTGGTGG							
A	ellipticus	ACAAGTGGTGG							
	oxychlamys	ATAAGTGGTGG							
	roseoflorus	ATACGTGGTGG							
	irigaensis 19972532	ATATGTGGTGG	TTGG-ATT-	CCTCAACTTGCG	AG-CT	ATCGTGTG	GGACTC-CA	TCAATCGAC-	GGGCT
	irigaensis 19991999	ATATGTGGTGG-	TTGG-ATT-	CCTCAACTTGCG.	AG-CT	ATCGTGTG	GGGACTC-CA	TCAATCGAC-	GGGCT
	philippinensis	ATATGTGGTGG-	-TTGG-ATT-	GCTCAACTCGCG	AA-CT	ATCGTGTG	GGGACTC-CA	TCGATCCAC-	GGGCC
	obconicus	ATATGTGGTGG							
	sp. JJ_001 sp. JJ 002	ATATGTGGTGG ATACGTGGTGG							
	sp. JJ 003	ATACGTGGTGG-							
	sp. JJ 004	ATACGTGGTGG							
	sp. 001	ATATGTGGTGg							
	rhododendron	ATATGTGGTGG							
	sp. 0025 123	ATATGTGGTGG							
	sp. 20002051	ATACGTGGTGG							
	sp. 00293	ATATGTGGTGG							
	sp. 20000557A	ATACGTGGTGG-							
	tricolor	ATATGTGGTGG							
	tricolourX parvifolius	ATACGTGGTGG							
	burttii 20000562	ATATGTGGTGG							
A.	burttii 20000536	ATATGTGGTGG							
A.	arctocalyx	ATATGTGGTGG							
A.	chrysanthus	ATACGTGGTGG							
A.	parvifolius	ATACGTGGTGG	-TTGG-ATT-	CCTCAACTGGCGA	AA-CT	ATATCGTGTG	GGACTC-CA	TCAATCCAC-	-GGGCC
A.	radicans	ATACGTGGTGG	-TTGG-ATT-	CCTCAACTTGCG	AA-CT	ATATCGTGTG	GGACTC-CA	TCAATCCAC-	-GGGCC
A.	argentii	ATATGTGGTGG							
A.	magnificus	ATATGTGGTGG	-TTGG-ATT-	CCTCAACTTGCG	AA-CC	ATCGTGTG	GGACTC-CA	TCAATCCAC-	-GGACC
	malulidii 19980282	ATATGTGGTGG							
A.	malulidii 19980283	ATATGTGGTGG							
	siphonanthus	ATATGTGGTGG							
A.	aff. siphonanthus	ATATGTGGTGG							
A.	speciosus	ATATGTGGGGG	-TTGG-ATT-	CCTCAACTTGCGA	AA-CT	TATCGTGCG	GGATAC-CA	.CCGATCCAC-	-GGGCC
	guttatus	ATATGTGGTGG							
	pachyanthus	ATACGTGGTGG							
	longicaulis	ATATGTGGTGG							
	albidus	ATATGTGGTGG							
	sp.nov.20000512	ATATGTGGTGG							
	viridiflorus 20000332	ATATGTGGTGG							
	viridiflorus 20021227 fecundus	ATATGTGGTGG							
	fulgens	ATATGTGGTGG							
	angustifolius	ATATGTGGTGG							
	fruticosus	ATATGTGGGGG							
	buxifolius	ACATGTGGTGG							
	ceylanicus	ATATGTGGTGG							
	bracteatus	ATATGTGGTGG							
	humilis	ATATGTGGTGG							
A.	hildebrandii AY047040	ATATGTGGTGG	-TTGG-ATT-	CCTCAACTTGCGT	A-CT	TATCGTGCG	GGAATC-CA	TCGACCCAC-	-GTGCT
A.	hildebrandii 19991628	ATATGTGGTGG							
A.	gracilis -	ATATGTGGTGG							
A.	hosseusii	ATATGTGGTGG							
A.	hookeri	ATATGTGGTGG	-TTGG-ATT-	GCTCAACTTGCGA	A-CT	TATCGTGCG	GGACTC-CA	CCGAGCCAC-	-GTGCC
A.	macranthus	ATATGTGGTGG	-TTGG-ATT-	CCTCAACTTGCGA	AA-CT	TATCGTGCG	AGACTC-CA	CCGACCCAC-	-GGGCT
A.	parviflorus 19671067	ATATGTGGTGG							
	aff. parviflorus 19672220	ATATGTGGTGG	-TTGG-ATT-	CCTCAACTTGCGA	VA-CT	TATCGTGCG	AGACTC-CA	CCGACCCAC-	-GGGCC
A.	mimetes	ATATGTGGTGG							
	sikkimensis	ATATGTGGTGG	-TTGG-ATT-	CCTCAACTTGCGA	AA-CT	TATCGTGCG	AGACTC-CA	.CCGACCCAC-	-GGGCC
	arfakensis	ATATGTGGGGG							
	austroyunnanensis	ATATGTGGTGG							
	lineatus	ATATGTGGTGG							
	pachytrichus	ATATGTGGTGG	-TTGG-ATT-	CCTCAACTTCCGA	AA-CT	TATCGTGCG	GGACTC-CA	CCGACCCAC-	-GCGCC
	pseudohybridus	ATATGTGGGGG	-TTGG-ATT-	GCTCAACTTGCGA	AA-CT	TATCGTGCG	GGACAC-CA	CcGTTCCAC-	-GGGCC
	batakiorum	ATATGTGGTGG	-TTGG-ATT-	CTTCAACTTGCGA	A-CT	TATCGCTCG	GGGCTC-CA	CCGATCCAC-	-GGTCC
	garrettii	ATATGTGGTGG							
	acuminatus	ATATGTGGTGG							
	myrmecophilus	ATATGTGGTGG							
	sp. 00171	ATATGTGGTGG							
	viridiflorus 20000228	ATATGTGGTGG							
A.	andersonii	ATATGTGGTGG	-TTGG-ATT-	CCTCAACTTGCGT	A-CT	TATCGTGCG	GGACCC-CA	ACGACCCAC-	-GTGCT
	A M 16					1111001000	Janeso CA		01001

Fig. 26 (continued)

		570 580 590 600
	r. baileyi	CGACCCTG-TGGCAGCAGAT-TGGTGCTGCCTTCCA
	s. forrestii curtisii	CGACCCAA-CGGCACGAGAT-TGCCCTCGA
	musaensis	TGACCCAA-TGGCACAAGAT-TGCCCTCGA
	javanicus 19971339	CGACCCAA-T-CAATGGCGCAAGAT-CGCcCTCGA TGACCCAA-TGGCACAAGAT-TGCCCTCGA
	aff. javanicus 20010484	TGACCCAA-TGGCACaagat-tgCCCTCGA
	Vinaceus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	nummularius	CGACCCAAAGGCACAAGAT-GGCCCTCGA
	ellipticus oxychlamys	AGACCCAAAGGCACAAGAT-CGCCCTCGA
	roseoflorus	CGACCCAA-CGGCACAAGAT-GGCCCTCGA CGACCCAA-CGGCACAAGAT-GGCCCTCGA
	irigaensis 19972532	CGACCCAA-TGGCACAAGAT-TGCTCTCGA
	irigaensis 19991999	CGACCCAA-TGGCACAAGAT-TGCTCTCGA
	philippinensis	CGACCCAA-TGGCACGAGAT-TGCTCTCGG
	obconicus sp. JJ_001	TGACCCAA-TGGCACmAGAT-TGCCCTCGA TGACCCAA-CGGCACAAGAT-TGCCCTCGA
	sp. JJ 002	TGACCCAA-TGGCACAAGAT-TGCCCTCGA
	sp. JJ 003	TGACCCAA-TGGCACAAGat-tgCCCTCGA
	sp. JJ_004	TGACCCAA-TGGCACAAGat-tgCCCTCGA
	sp. 001	TGACCCAA-TGgCACAAGAT-TGCCCTCGa
	rhododendron	CGACCCAAATGGCACAAGAT-TGCCCTCGA
	sp. 0025_123 sp. 20002051	TGACCCAA-TGGCACAAGAT-TGCCCTCGA
	sp. 00293	TGACCCAA-TGGCACAAGAT-TGCCCTCGA CGACCCAA-TGGCACTagAt-tGCCCTCGA
	sp. 20000557A	TGACCCAA-TGGCACAAGAT-TGCCCTCGA
	tricolor	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
A.	tricolourX parvifolius	TGACCCAA-TGGCACAAGAT-TGCCTTCGA
	burttii 20000562	CGACCCAA-TGGCACTAGAT-TGCCCTCGA
	burttii 20000536	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	arctocalyx	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	chrysanthus parvifolius	TGACCCAA-TGGCACAAGAT-TGCCCTCGA TGACCCAA-TGGCACAAGAT-TGCCCTCGA
	radicans	TGACCCAA-TGGCACAAGAT-TGCCCTCGA
	argentii	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
A.	magnificus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	malulidii 19980282	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	malulidii 19980283	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	siphonanthus aff. siphonanthus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
_	speciosus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	guttatus	CGACCCAA-TGGCACAAGAT-CGCCCTCGA
	pachyanthus	CGACCCAA-CGGCACAAGAT-CGCCCTCGA
	longicaulis	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	albidus	CGACCCAA-TGGCACAAGTT-TGCCCTCGA
	sp.nov.20000512	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	viridiflorus 20000332 viridiflorus 20021227	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	feoundus	CGACCCAA-TGGCACaagat-tgCCCTCGA CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	fulgens	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
A.	angustifolius	CAACCCAA-TGGCACAAGAT-TGCCGCCCTCGA
	fruticosus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	buxifolius	GGACCCAA-TTGGCATAAATAAGATCTGCCCtCGA
	ceylanicus bracteatus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	humilis	CGACCCAA-TGGCACAAGAT-TGCCCTCGA CGACCCAAGAAGAT-TGCCCACGA
	hildebrandii AY047040	CGACCCAA-CAAGAT-TGCCCTCGA
A.	hildebrandii 19991628	CGACCCAA-CAAGAT-TGCCCTCGA
	gracilis	GGACCCAG-CAAGTT-CGCCCTCGA
	hosseusii	CGACCCAA-TGGCACAAgat-tgCCCTCGA
	hookeri macranthus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	parviflorus 19671067	TGACCCAA-TGGCACAAGAT-TGCCCTCGA CGACCCAA-TGGCACAAGAt-tgCCCTCGA
	aff. parviflorus 19672220	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	mimetes	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	sikkimensis	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	arfakensis	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	austroyunnanensis	CGACCCAA-TGGCACGAGAG-TGCCCTCGA
	lineatus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	pachytrichus pseudohybridus	TGACCCAA-TGGCACAAGAT-TGCCCTCGA CAACCCAA-TGGCACAAGAT-TGCCGCCCTCGA
	batakiorum	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	garrettii	GGACCCAA-CGGCATAA-TAA-AT-TGCCCTCAA
	acuminatus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	myrmecophilus	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
	sp. 00171	CGACCCAA-TGGCACAagAt-tGCCCTCGA
	viridiflorus 20000228 andersonii	CGACCCAA-TGGCACAAGAT-TGCCCTCGA
		CGACCCAA-CAAGAT-TGCCCACGA

Fig. 26 (continued)

TCGAAACCCGCAAAGCAGACCCGTGAACATGTTTAAA--ATA-CACGCTTGCGTCCGCGATGTTGGACGC Lvs. forrestii A. sp. JJ_001 A. parvifolius radicans TCGAAACCTGCAAAGCAGACTCGTGAACATGTGTAAA---TAA--CATCGGGGGTCGTGAGGTTGGATGC tcgaaacctGCAAAGCAGACTCGTGAACATGTGTAAA---TAA--CATCGGGGGTCGTGAGGTTGGATGC A. sp. JJ 002 sp. JJ_003 sp. JJ_004 speciosus longicaulis TCGAAACCTGCAAAACAGACATGCGAACATGTGTAAT---TA---TGTTGGCGGTCGTGATGTTTGGATGCTCGAAAACCAGACCLGCGAACATGTTGTATT---TA---CGTTGGCGACCGCGATGTTGGATGC TCGAAACCTGCAAAACAGACcCGCGaACaTGtGTAaa-AATA---CGTTGGCGGTCGCGATGTTGGATGC A. lineatus TCGAAACCTGCAAAACAGACCTGCGAACATGTGTATT---T-TACGTTGGCGGTCGCGATGTTGGATGC
TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCGATGTTGGATGC fecundus A. humilis hildebrandii AY047040 TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTTTGGATGC
TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTTGGATGC sp. CM-007 A. sp. CM 009 sp. CM 013 TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTTGGATGC
TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTTGGATGC A. A. sp. CM 022 A. sp. CM 026 TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTTGGATGC TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTTGGATGC sp. CM 030 sp. CM 034 TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTLGGATGCTCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAA---TA---CGTTGGTGGTCGCTATGTTGGATGC A. TCGAAACCTGCAAAACAGACCTGCGAACATGTGTAAT---TA---CGTTGGCGGTCGCGATGTTTGATGCACGAAACCTACAAAAGTGACCCGCGAACATGTGTAAA--ATA---CGTTGGCGGTCGCGATGTTGGATGC hildebrandii 19991628 gracilis A. hossensi i TCGAAACCTGCAAAACAGACCCGCGAACATGTGTAAA-AATA---CGTTGGCGGTCGCGATGTTGGATGC
TCGAGACCTGCAAAACAGACCCGCGAACATGTGTAAA-AATA---CGTTGGCAGTCGCGATGTTGGATGC A. hookeri A. macrant A. fulgens macranthus TCGAAACCTGCAAAACAGACCCGCGAACATGTGTAAA-AATA---CGTTGGCGGTCGCGATGTTGGATGC
TCGAAACCTGCAAAACAGACCCGCGAACATGTGTAAA-AATA---CGTTGGCGGTCGTGATGTTGGATGC A. parviflorus 19671067 A. aff. parviflorus 19672220 TCGAAACCTGCAAAACAGACCCGCGAACATGTGTAAA-AATA---CGTTGGCGGTCGCGATGTTGGATGCTCGAAACCTGCAAAACAGACCCGCGAACATGTGTAAA-AATA---CGTTGGCGGTCGCGATGTTGGATGC garrettii TCGAAACCTGCAAAGCAGACCCGTGAACATGTGTAAA---TA---CGTTGGCGGTCGCGATGTTGGATGC LCGAAACCTGCAAAACAGACCCGTGAACATGTGTAAA---TA---CGTTGGAGGTCGCGATGTTGGACGC acuminatus andersonii TCGAAACCTGCAAAACAGACCTGTGAACATGTGTAAA---TA---CGTTGGTGGTCGTGATGTTGGATGC 110 100 120 140 130 -cccaagtggcgcaagtcgttgctcg .1......... Cyr. baileyi ATTT--GCGTCCAACCAACAT-CACGACCCTGAC Lys. forrestii A. sp. JJ 001 CTCT--GTGT-----CCAGCAT-CACGACCTCGAC------CACCCCAGGTGGCGCAAGTCGCCTGGG---CCAGCAT-CACGACCTCGAC-------CCCAAGTGGCTCAAGTCGCTTGGG-ATTT--GTGT-A. parvifolius ATCT-GTGT---CCAGCAT-CACGACCTCGAC------CCCAAGTGGCGCAAGTCGCTTGGGATTT-GTGT---CCAGCAT-CACGACCTCGAC------CCCAAGTGGCGCAAGTCGCTTGGGradicans sp. JJ_002 ATTT-GTGT---CCAGCAT-CACGACCTCGAC------CCCAAGTGGCGCAAGTCGCTTGGG-ATTT-GTGT---CCAGCAT-CACGACCTCGAC-----CCCAAGTGGCGCAAGTCGCTTGGG-A. sp. JJ 003 A. sp. JJ_004 ATTT-GTGT---CCAGCAT-CACGACCTCGAC------CCCAAGTGGCGCAAGTCGCTTGGG-ATTT-GTGT---CCAGCAT-CACGGCCTCGAC------CCCCAAGTGGCGAGAGTTGCTTGGG-A. speciosus
A. longicaulis ATTT--GAGT---CCAGGGT-CACGGCCTCGAC--------CCCCGAGTGGCGAGAGTTGCTTGGG---CCAGCAT-CACGGCCCCGAC------TCCCAAGTGGCGCGAGTTGCTTGGG---CCAGCGT-CACGGCCTCGAC------CCCCGAGTGGCGAGAGTTGCTTGGGlineatus ATTTTTGAGT fecundus ATTT--GAGT ATTTTTGAGT-----CTAGCAT-CACGGCCTCGAC------CCCCCAAGTGGCGCGAGTTTCTTGGG-ATTTTTGAGT----CCAGCAT-CACGGCTTTGAC------CCCCAAGTGGCGCGAGTTGCTTGGGhildebrandii AY047040 -CCAGCAT-CACGGCTTTGAC-----CCCCAAGTGGCGCGAGTTGCTTGGGA sp. CM-007 ATTTTTGAGT-A. sp. CM 009 A. sp. CM 013 A. sp. CM 022 A. sp. CM 026 ATTTTTGAGT----CCAGCAT-CACGGCTTTGAC------CCCCAaGTGGCGCGAGTTGCTTGGGA ATTTTTGAGT---CCAGCAT-CACGGCTTTGAC------CCCCAAGTGGCGCGAGTTGCTTGGGA ATTTTTGAGT--CCAGCAT-CACGGCTTTGAC------CCCCAAGTGGCGCGAGTTGCTTGGGA -CCAGCAT-CACGGCTTTGAC------CCCCAAGTGGCGCGAGTTGCTTGGGA ATTTTTGAGT sp. CM 030 sp. CM 034 ATTTTTGAGT----CCAGCAT-CAcGGCTTTGAC-----CCCCAAGTGGCGCGAGTTGCTTGGGA -CCAGCAT-CACGGCTTTGAC------CCCCAAGTGGCGCGAGTTGCTTGGGA ATTTTTGAGT -CCACCAT-CACGGCCTCGACCCCC--hildebrandii 19991628 ATTTTTGTGT----AAGTGGCGTGAGTTGCTTGGG--CCAGCATTCACGGCCTCGAC-gracilia ATTTTTGAGT-----CTCCCAAG-ATTTTTGAGT----CCAGCATTCACGGCCTCGAC-------TCCCCAAG------TTGCTTGGG-ATTTTTGAGT----CCAGCAT-CACGGCCTCGAC-----TCCCCAAGTGGCGCGAGTTGCTTGGG-A. hossensii ATTCTTGAGT -CCAGCAT-CACGGCCTCCAC------CCCCAAGTGGCGCGAGTTGCTTGGG macranthus ACTTTTGAGT--CCAGCAT-CACGCCCTCGAC-----TCCCAAGTGGCGAGAGTTGCTTGGG----CCAGCAT-CACGCCCTCGAC---fulgens ATTTTTGAGT --TACCAAGTGGCGAGAGTTGCTTGGG-A. parviflorus 19671067 A. aff. parviflorus 19672220 ATTTTTGAGT----CCAGCAT-CACGGCCTCGAC-----TCCCAAGTGGCGCGAGTTGCTTGGG-ATTTTTGAGT----CCAGCAT-CACGGCCTCGAC-----TCCCAAGTGGCGCGAGTTGCTTGGGgarrettii ATCT-GTGT---CCAGCGT-CACGGCCTCGACCCCC----CCCCGAGTGGCGCGAGTTGCTTGGGG acuminatus ATTT--GAGT----CGAGCAT-CACGGCCTCGAA----CCCCAAGTGGCGCGAGTTGCTTGGG-

Fig. 27 A 531 bp character-taxon matrix of 30 Aeschynanthus taxa based on ITS sequences. Gap symbol (-) indicates insertion or deletion at the site. ? symbol shows missing nucleotide data. Asterisks * represent excluded sites from analyses.

ATTTTTGAGT----CTAGCAT-CACGGCCTCGACCCCC-----CCCCAAGTGGCGCGAGTTTCTTGGG-

andersonii

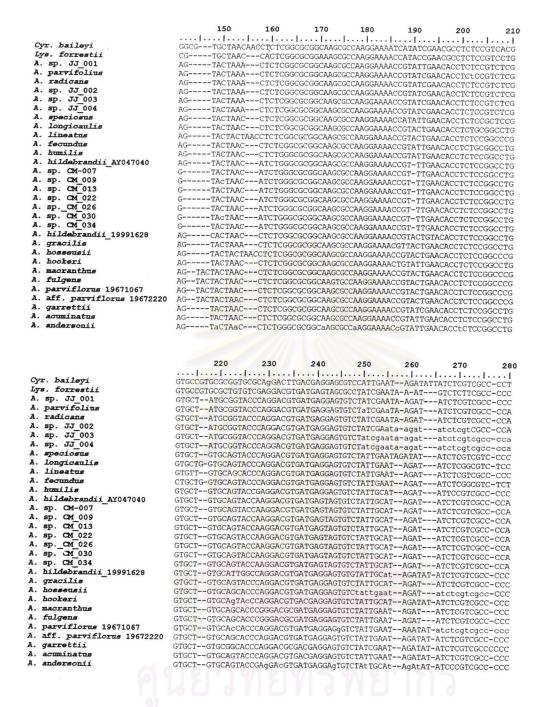


Fig. 27 (continued)

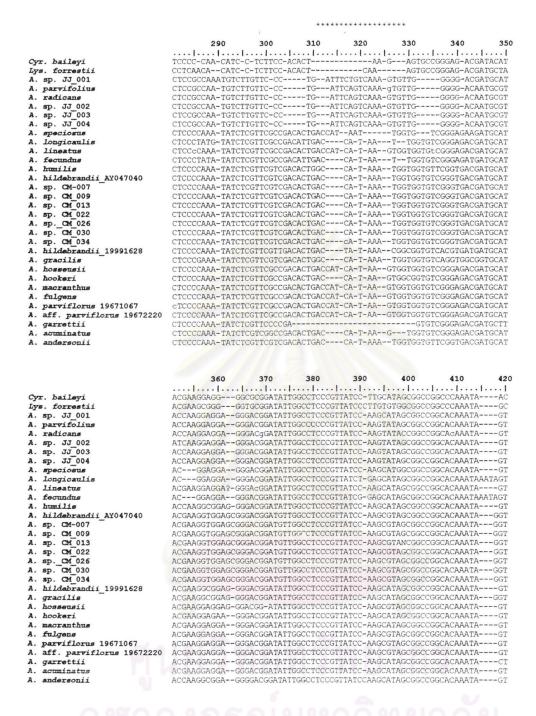


Fig. 27 (continued)

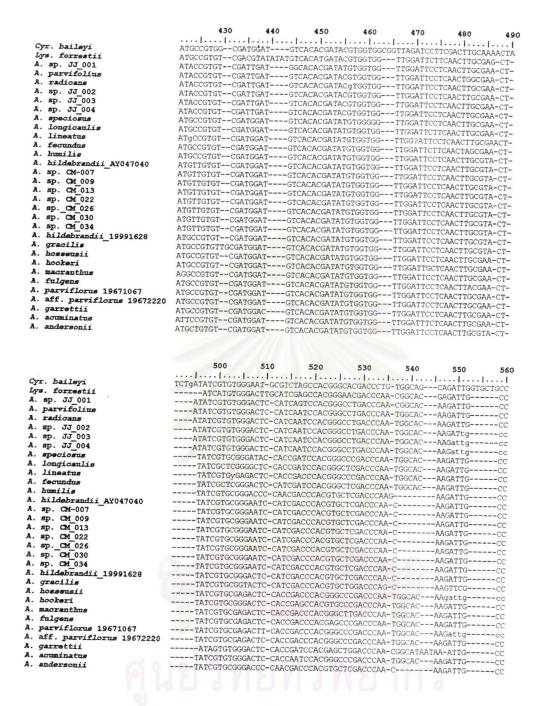
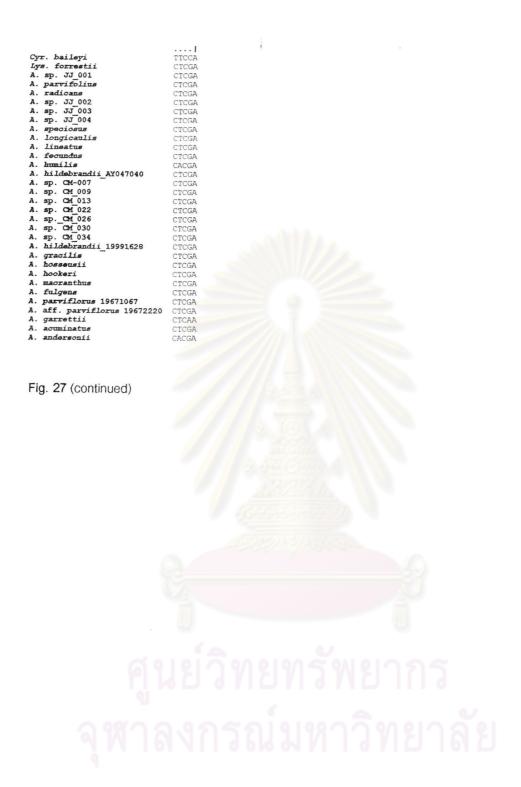


Fig. 27 (continued)



4.6.1 Analyses of the ITS data matrix of Aeschynanthus samples supplied from RBGE

The ITS sequences of all Aeschynanthus specimens supplied from RBGE and those of all previously studied Aeschynanthus were first automatically aligned by ClustalX program and then adjusted manually to get a highest level of homology before phylogenetically analysed. Some nucleotide positions appeared to be too ambiguous to align and necessarily to be excluded.

Phylogenetic analyses by maximum parsimony approach using heuristic searching strategy were performed to analyse this data matrix of 571 bp. Cytandra baleyi (GenBank acession number AF349151 and AF34923) and Lysionotus forrestii (AF349152 and AF 349233) were included into the analysis as outgroup taxa. Two hundreads and nine characters were parsimony-informative as synapomorphy (sharedderived character) and 97 characters were parsimony-uninformative as autapomorphy specifically for each taxon. There were more than 202,700 most parsimonious trees (MPTs) (trees exceed a computer memory used by PAUP*) found from this data set, with 736 steps in length (Fig. 29) without a gap matrix included (0,1 symbol). Consistency index (CI) was 0.600 and homoplasy index (HI) was 0.400. Retention index (RI) was 0.832 and rescaled consistency index (RC) was 0.500. When a 94-positions gap matrix was included to the analysis to increase informative characters, more than 202,700 maximally parsimonious trees (trees exceed a computer memory used by

PAUP*) were obtained with a tree length of 969 steps and higher tree-resolution. Semistrict (Fig. 30) and 50% majority-rule (Fig. 31) consensus trees were made from all of 202,700 MPTs. Both consensus trees were primarily similar to each othe in that all Aeschynanthus species were devided into two major clades: Clade I and Clade II. Bootstrap (BS) and jackknife (JK) supporting-values were calculated to confirm a reliability of each branch (Fig. 30). For distance method analysis, a neighbour-joining (NJ) tree with statistic supporting-values (Fig. 32) was drawn to compare with results from maximum parsimony analyses.

Regarding to a topology of the semistrict consensus tree (Fig. 30), almost all of Aeschynanthus species which had been studied on different RBGE accession number (for example, A. fulgens 20002032 VS A. fulgens 19900384) were paired or clustered together as sister sequences. The exceptional taxa were A. javanicus 19971339 VS A. aff. javanicus 20010484 and also A. hildebrandii 19991628 of RBGE VS A. hildebrandii AY047040 from GenBank. All phylogenetic trees produced by all methods used in this study confirmed the division of Aeschynanthus into two major clades. Both major clades had high bootstrap and jackknife supporting-values: 89% BS and 88% JK for clade I. and 78% BS and 78% JK for clade II (Fig. 30). In the major clade I, Aeschynanthus parviflorus 19671067 paired to A. aff. parviflorus 19672220 with 85% BS and 73% JK high supporting-values. Aeschynanthus linaetus 19991622 which was newly added to the tree was paired to A. lineatus 19970613 of the previous work with high supportingvalues (98% BS and 93% JK) before weakly joining with A. pachytrichus.

Aeschynanthus hookeri was sistered to A. austroyunnanensis with low supportingvalues. This couple was then joined to the group of A. humilis, A. andersonii, A. hildebrandii AY047040, A. gracilis 19802570 and 198219970, A. hildebrandii 19991628 with less than 50% supporting-values. The position of A. sp. nov. 20000512 on the phylogenetic tree was unresolved because it formed a polytomic node with other species such as A. viridiforus 20000332 and 20021277, the polytomic grouping of A. batakiorum, A. myrmecophilus, A. sp. 0017, and A. viridiflorus 20000228, and the subclade of A. longicaulis 19672218 and 20001430 and A. albidus. Interestingly, the two newly-added A. viridiflorus 20000332 and 20021227 were not clustered with A. viridiflorus 20000228 from previous study. In addition, the three synonymously problematic species, Aeschynanthus andersonii, A. humilis and A. hildebrandii (GenBank accession number AY047040) were clustered together in this major clade I. Aeschynanthus humilis was firstly paired with A. andersonii with very high supportingvalues (98% BS and 99% JK) before joined to A. hildebrandii with 69% BS and 64% JK. However, A. hildebrandii 19991628 which were given by RBGE was not grouped with these three taxa in the semistrict consensus tree but equally close to A. gracilis 19802570 and A. gracilis 19821970.

In the major clade II, *Aeschynanthus burttii* 20000562 was paired with *A.* sp. 00293 with 59% BS and 57% JK low supporting-values before joined to *A. burttii* 20000536 with very high BS and JK supporting-values (99% and 98%, respectively). Likewise, the additional *A. irigaensis* 19991999 was sistered to *A. irigaensis* 19972532

with hundred-percentages BS and JK supporting values. The molecular phylogenetic tree also showed several subgroupings of taxa in this clade. One interesting subgroup IIA (88% BS and 81% JK) is the cluster of all taxa in the section Aeschynanthus and some members of section Microtricium. This subgroup could be divided into two minor groups. Aeschynanthus pavifolius 19881451 and 19671069, A. radicans 19622826 and 19672224, A. javanicus 19971339, A. sp. 20002051, A. sp. 20000557A, A. tricolor x parvifolius, A. chrysanthus, A. curtisii, A. obconicus and A. aff javanicus 20010484 were first clustered together as a distinctively strong group with 75% and 68% bootstrap and jackknife supporting-values. Noted that the supposingly Aeschynanthus hybrid. A. tricolor X parvifolius, was placed in this minor group close to A. parvifolius, its paternal side. The other minor group in the subgroup IIA of the clade II included with A. malulidii 19980282 and 19980283, A. aff. siphonanthus, A. siphonanthus, A. arctocalyx, and A. tricolor with very high bootstrap and jackknife supporting-values (95% and 97%, respectively). Apparently, lack of knowledge of sectional classification of many taxa in the major clade II gave dificulty in recoginition of mono or non-mono phylogenetic groupings in this clade.

Considering specifically on Thai Aeschynanthus, the positions of most of them on the ITS phylogenetic tree were in the major clade I. These clade I members were A. flugens (both 20002032 and 19900384), A. macranthus, A. parviflorus 19671067 and A. aff. parviflorus 19672220, A. lineatus (both 19970613 and 19991622), A. hosseusii, A. humilis, A. andersonii, A. hildebrandii 19991628, A. acuminatus (both 19981469 and

19981444), A. longicaulis (19872218 and 20001430), A. fecundus, A. speciosus and A. garrettii. The two other Thai Aeschynanthus, A. parvifolius (both 19881451 and 19671069) and A. radicans (19622826 and 19672224) were placed in the clade II and their positioning supported the previous study of Denduangboripant et al. (2001). Since a majority of Aeschynanthus species in the clade I occur in mainland, Indochina (including Thailand) while those of the clade II mostly occur in both oceanic areas and Malay Peninsular, the phylogenetic positions of these 16 Aeschynanthus reported in Thailand reasonably follow their biogeographical trend.



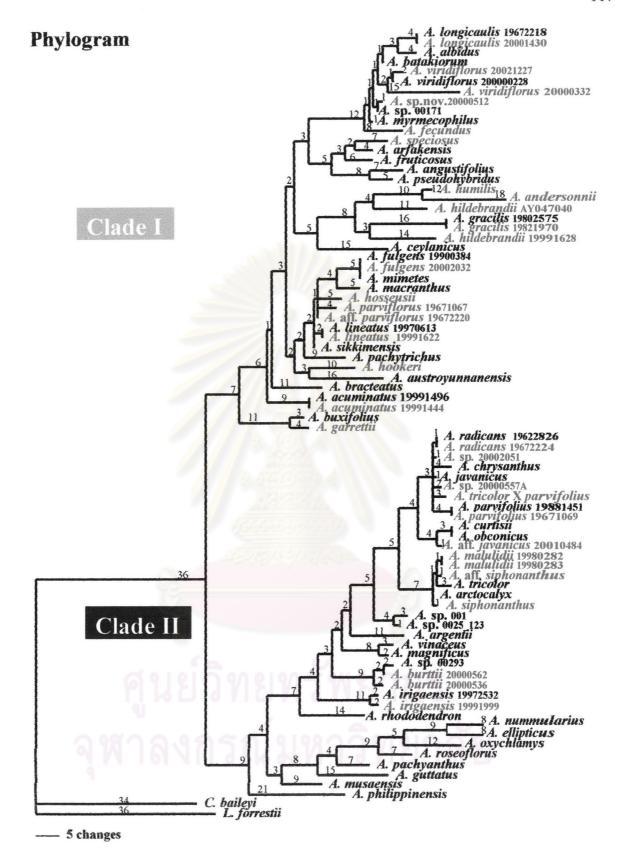


Fig. 28 One phylogram of 202,700 equally most parsimonious trees (736 steps in length) for 80 Aeschynanthus taxa and two outgroup Gesneriaceae taxa (*Cytandra baileyi* and *Lysionotus forrestii*) based on parsimony analysis of the combined ITS1 and ITS2 sequence data without gap matrix [CI =0.601, RI =0.832, RC =0.500]. Taxon names in colour letters are *Aeschynanthus* samples used in this study. The number along branches indicates the amount of character change (branch length).

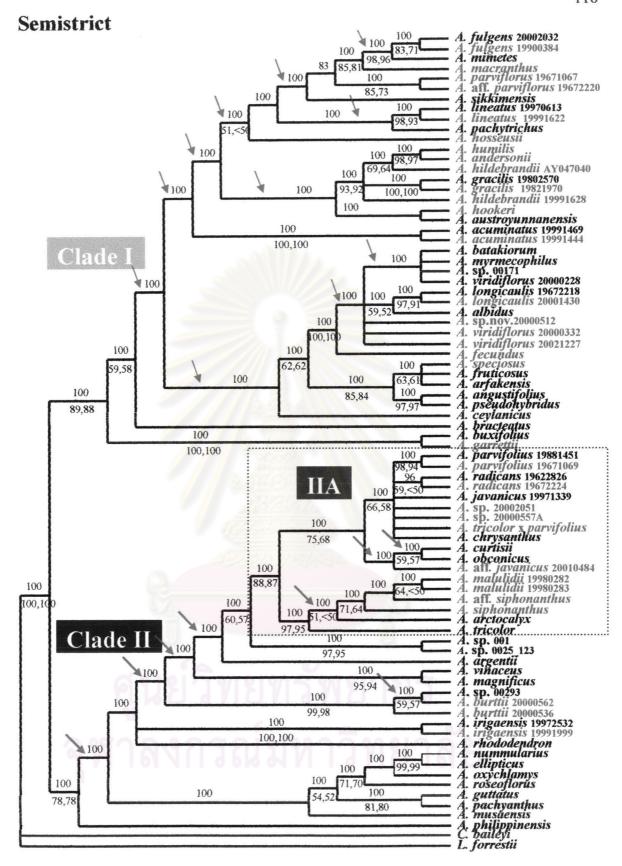


Fig. 29 A semistrict consensus tree of 202,700 most parsimonious trees (969 steps in length) for 80 Aeschynanthus taxa and two outgroup Gesneriaceae taxa (Cytandra baileyi and Lysionotus forrestii) based on parsimony analysis of the combined ITS1 and ITS2 sequence data without gap matrix. The upper numbers are percentages of clade-congruity between MPTs. The lower numbers are "fast" stepwise-addition Bootstrap and Jacknife supporting-values of 10,000 replicates. The arrows indicate branches that collapse when gap matrix is excluded. Taxon names in colour letters are Aeschynanthus samples used in this study.

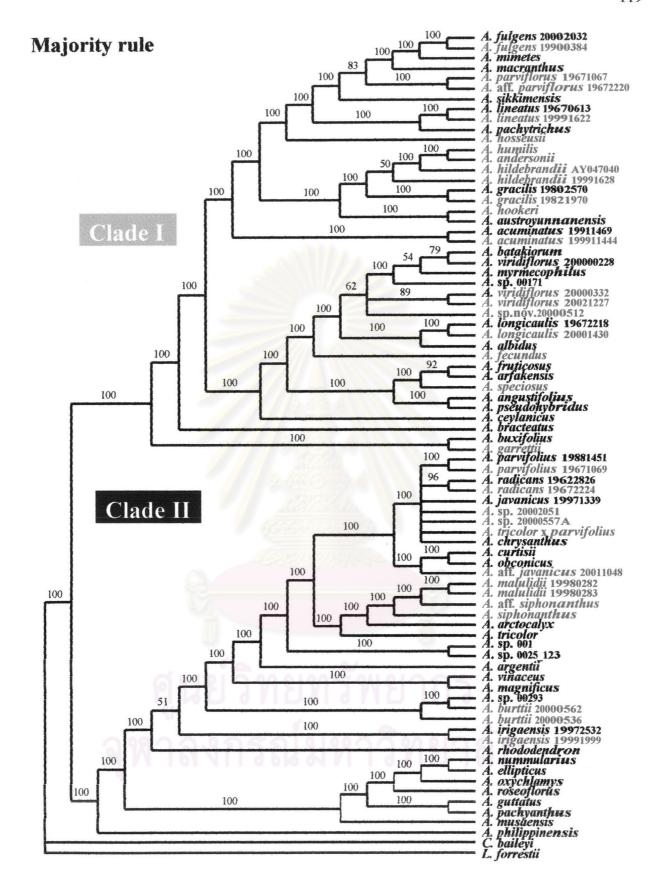


Fig. 30 A 50% majority-rule consensus tree of 202,700 most parsimonious trees of 80 Aeschynanthus based on ITS sequence data with gap matrix and using *C. Baileyi* and *L. forrestii* as outgroups. The upper numbers are percentages of identical clade between MPTs on the consensus tree. Taxon names in colour letters are Aeschynanthus samples used in this study.

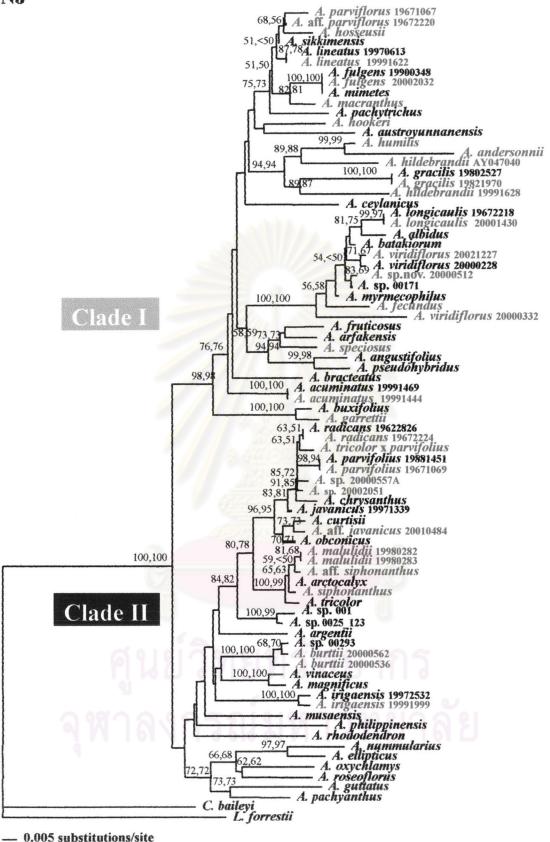


Fig. 31 A neighbour-joining tree of 80 Aeschynanthus taxa based on ITS sequence data without gap matrix and using *C. baileyi* and *L. forrestii* as outgroups. The numbers along branches are 10,000-replicate bootstrap and jackknife supporting-values, respectively. Note that supporting-values less than 50% were not shown in the tree. Taxon names in colour letters are Aeschynanthus samples used in this study.

4.6.2 Analyses of the ITS data matrix of *Aeschynanthus* samples bought from Jatujak flee market

ITS regions of six additional Aeschynanthus specimens bought from Jatujak market were sequenced and Blast-searched with the GenBank nucleotide database. Aeschynanthus sp. JJ_001, A. sp. JJ_002, A. sp. JJ_003, and A. sp. JJ_004 except A. sp. JJ_006 were found having ITS sequences similar to those of members of the genus Aeschynanthus. Even A. sp. JJ_005 which showed ITS sequence-length polymorphism problem also gave a high similarity to Aeschynanthus ITS sequences in GenBank. Aeschynanthus sp. JJ_002 showed ITS sequence similar to those of A. radicans clone A (AF34178, AF349259) and gave 100% identities. Aeschynanthus sp. JJ_003 and A. sp. JJ_004 gave the same ITS sequences and also had high similarity to A. radicans clone A with 99% identities. However, Aeschynanthus sp. JJ_001 gave a unique sequence which is different from any other Aeschynanthus reported in GenBank. Aeschynanthus sp. JJ_006 did not give ITS sequences similar to Aeschynanthus and its sequences were found closing to Columnia linaris with 96 % identities.

Maximum parsimony analyses using heuristic searching strategy were performed to study a molecular phylogenetic relationship between these four Jatujak *Aeschynanthus* and other sequenced taxa. One hundred and eighty-nine characters of the 571 bp ITS sequence data matrix were parsimony-informative and 112 characters were phylogenetically uninformative as autapomorphy specifically for each taxon. There were 203,700 most parsimonious trees (MPTs) found from this data set without using

gapmatrix, with 743 steps in length (for example, Fig. 33). Consistency index (CI) was 0.602 and Homoplasy index (HI) was 0.395. Retention index (RI) was 0.822 and rescaled consistency index (RC) was 0.494. A semistrict consensus tree (Fig. 34) was made from all of 203,700 most parsimonious trees after analysed the data matrix without gap matrix. Moreover, a neighbour joining (NJ) tree with bootstrap and jackknife (JK) supporting-values (Fig. 35) was also made. Both Aeschynanthus molecular phylogenies either from maximum parsimony or distance method showed that the cultivars A. sp. JJ_002, A. sp. JJ_003, and A. sp. JJ_004 were grouped with A. chrysanthus, A. parvifolius, and A. radicans in the section Aeschynanthus. For the unique pinkish Aeschynanthus, A. sp. JJ_001, this plant was placed separately from other Jatujak Aeschynanthus, located distinguishly as a unique branch among other members of the section Aeschynanthus.



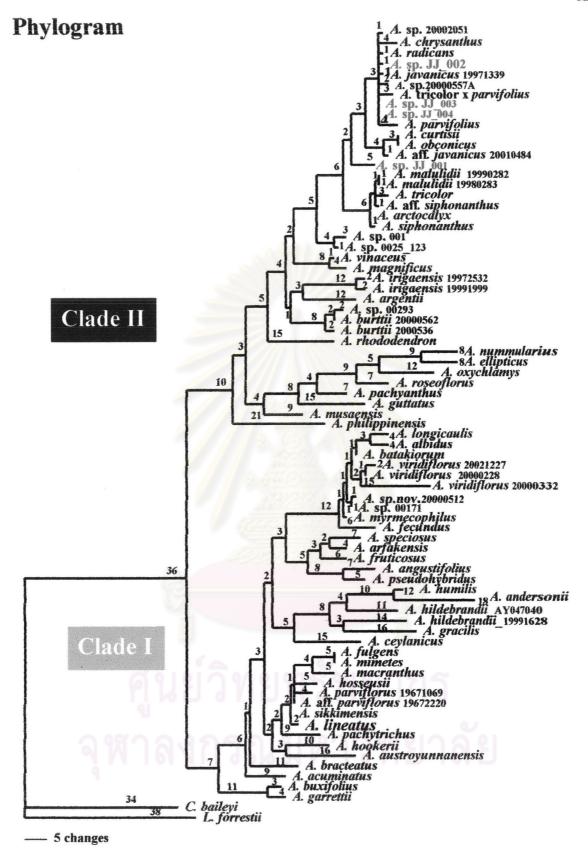


Fig. 32 One phylogram of 203,700 equally most parsimonious trees (743 steps in length) for 77 Aeschynanthus taxa and two outgroup Gesneriaceae taxa (Cytandra baileyi and Lysionotus forrestii) based on parsimony analysis of the combined ITS1 and ITS2 sequence data without gap matrix [CI =0.602, RI =0.821, RC =0.494]. Taxon names in colour letters are Aeschynanthus samples bought from Jatujak market. The number along branches indicates the amount of character changes (branch length).

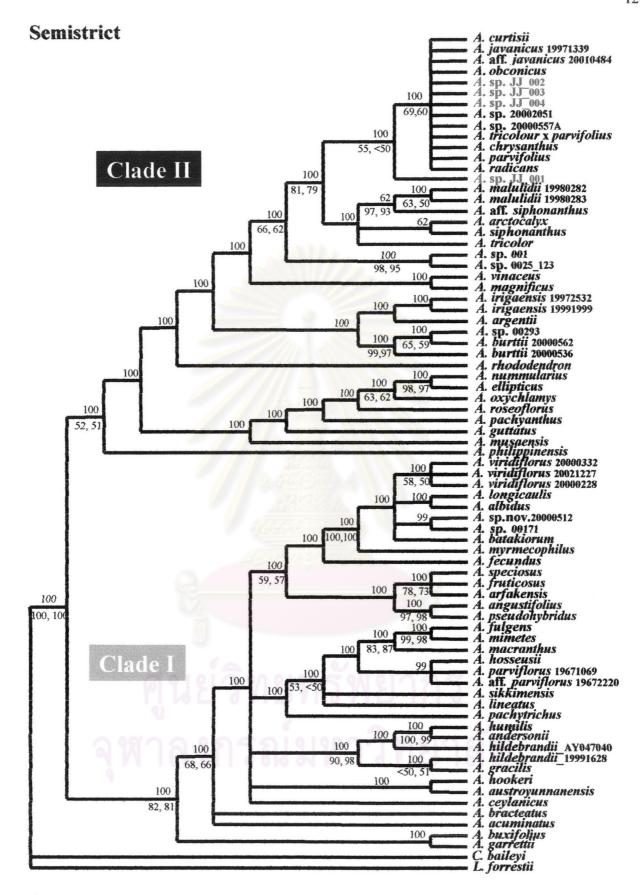


Fig. 33 A semistrict consensus tree of 203,700 most parsimonious trees (743 steps in length) for 77 Aeschynanthus taxa and two outgroup Gesneriaceae taxa (Cytandra baileyi and Lysionotus forrestii) based on parsimony analysis of the combined ITS1 and ITS2 sequence data without gap matrix. The upper numbers are percentages of clade-congruity between MPTs. The lower numbers are "fast" stepwise-addition Bootstrap and Jacknife supporting-values of 10,000 replicates. Taxon names in colour letters are Aeschynanthus samples bought from Jatujak market.

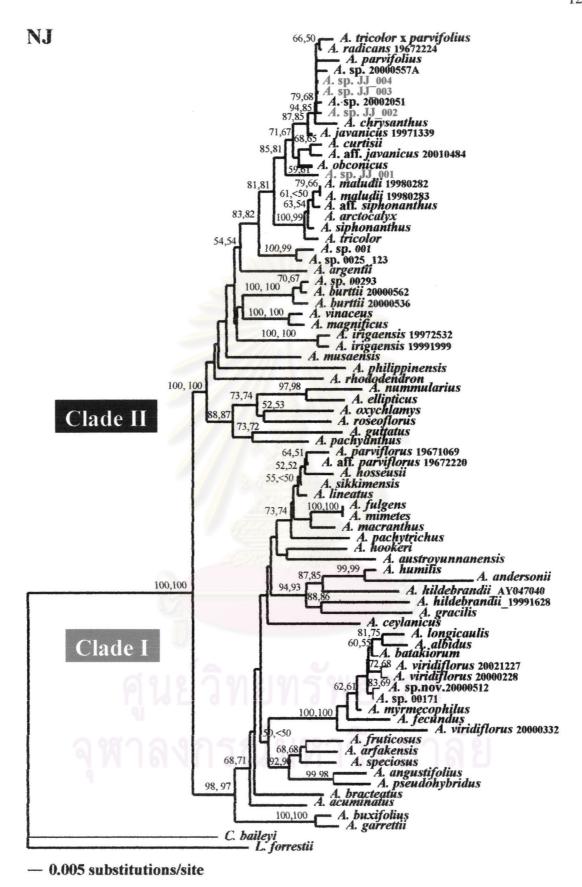


Fig. 34 A neighbour-joining tree of 77 Aeschynanthus taxa based on ITS sequence data without gap matrix and using *C. baileyi* and *L. forrestii* as outgroups. The numbers along branches are 10,000-replicate bootstrap and jackknife supporting-values, respectively. Note that supporting-values less than 50% were not shown in the tree. Taxon names in colour letters are Aeschynanthus samples bought from Jatujak market.

4.6.3 Analyses of the ITS data matrix of Aeschynanthus collected in Chiangmai

The ITS sequences of seven of Aeschynanthus samples collected in San-ku and Doi Pui, two nearby areas in Chiangmai province, were Blast-searched with Genbank nucleotide database. All Aeschynanthus sp. CM_007, A. sp. CM_009, A. sp. CM_013, A. sp. CM_022, A. sp. CM_030, A. sp. CM_034 had the ITS sequences which were similar to members of the genus Aeschynanthus. In fact, all of these ITS sequences were identical to that of A. hildebrandii (Genbank accession number AY047040) with 100% identities. Phylogenetic analysis using distance method to make a neighbourjoining (NJ) tree (Fig. 36) supported the Blast-search result. After phylogenetic analysed with other 21 Thai Aeschynanthus taxa, all seven Aeschynanthus collected from Chiangmai were clustered together with high bootstrap and jackknife supporting-values (94% and 86%, respectively). Moreover, these seven Chiangmai Aeschynanthus were also grouped with A. hildebrandii AY047040 with 100% bootstrap and jackife supporting values, but separated distinctively from A. hildebrandii 19991628 given from RBGE.

> ศูนยวิทยทรัพยากร จุฬาลงกรณ์มหาวิทยาลัย

NJ

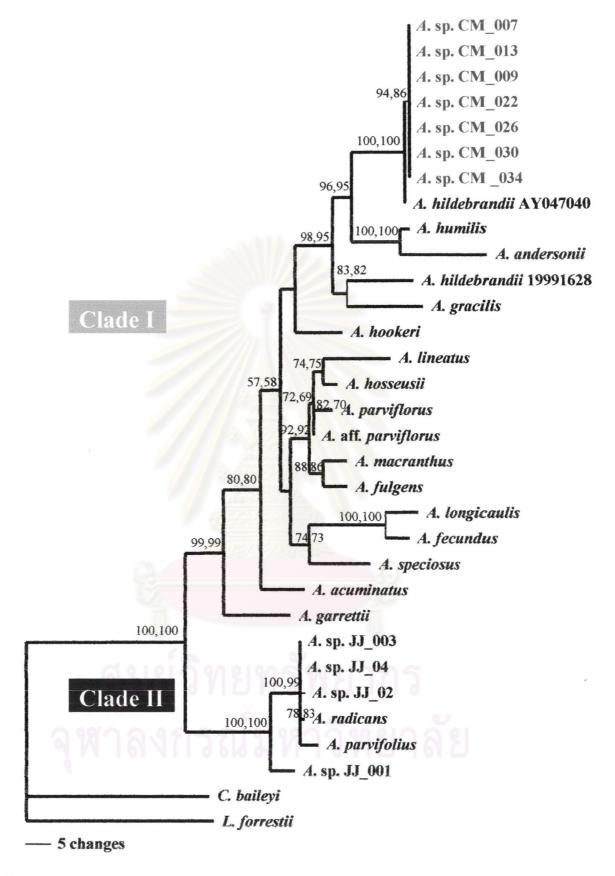


Fig. 35 A neighbour-joining tree of 30 Aeschynanthus taxa based on ITS sequence data without gap matrix and using *C. baileyi* and *L. forrestii* as outgroups. The numbers along branches are 10,000-replicate bootstrap and jackknife supporting-values, respectively. Note that supporting-values less than 50% were not shown in the tree. Taxon names in colour letters are Aeschynanthus samples collected in Chiangmai province.

4.7 PCR RAPD experiments

From PCR-RAPD amplification of A. andersonii 19970465, A. humilis 19850473, and A. hildebrandii 19991628 for solving synnonymous problem of these Aeschynanthus, PCR RAPD products of these plants were checked with agarose gel electrophoresis for presence or absence of major bands which showed a reproducible pattern among genotypes. Each RAPD band represents different alleles of a locus, do not co-migrate. Only two from three RAPD primers yielded informative and reproducible PCR products. Most of the observed RAPD products were in the range of 500 bp - 1.5 kb while the products belows 500 bp or above 1 kb were faint or non-reproducible bands. The RAPD primer UBC 001 amplified 5 bands from genomic DNA of A. andersonii and A. humilis with molecular size approximately 1.6 kb, 1.3 kb, 900 bp, 800 bp, and 700 bp. This primer gave only 3 bands for A. hildebrandii DNA: 1.3 kb, 900 bp and 700 bp. The other RAPD primer, UBC 002, amplified 3 bands from every samples with molecular size ca. 1.25 kb, 800 bp and 500 bp. Figure 37 shows an example of RAPD patterns using all three RAPD primers.



Fig. 36 PCR-RAPD products of three synonymous *Aeschynanthus* species compared with 1.5 kb + 100 bp DNA marker. Amplified products generated from genomic DNA with RAPD primers UBC 001, UBC 002, and UBC 003.

M = 1.5 kb + 100 bp DNA marker 4 = A. andersonii + UBC 002 8 = A. humilis + UBC 003

1 = A. andersonii + UBC 001

5 = A. humilis + UBC 002

9 = A. hildebrandii + UBC 003

2 = A. humilis + UBC 001

6 = A. hildebrandii + UBC 002

3 = A. hildebrandii + UBC 001

7 = A. andersonii+ UBC 003



4.8 Cytogenetic experiments

All chromosome numbers of six Aeschynanthus counted in this study are listed in Table 9. After investigating the root tip cells in mitotic cell division of each plant under light microscope, A. andersonii showed distinguishly separated cells which had best dye absorption and showed dark reddish colour chromosomes (2n=28) (Fig. 38). Aeschynanthus humilis gave a chromosome number of 2n= 28 with less dye-absorbing, light reddish colour chromosomes (Fig. 39). The chromosome number of the A. hildebrandii was also found being 28 (Fig. 40). The root tip cells of this species were separated distinguishly while having least dye absorption, made their chromosome having light grayish colour. Aeschynanthus obconicus, however, showed ambiguous chromosome number per cell since most of its cells were still not separated from each other. Its chromosomes were not dispersed enough to count an exactly chromosome number. The estimated chromosome numbers of A. obconicus were 28, 30 and 32 (Fig. 41). In the case of A. radicans (Fig. 42), the chromosome number was found to be 32 while its root cells were still attached together and its chromosomes could absorb the acetocarmine dye enough to darken the chromosomes. The last cytogentic experiment was done on Aeschynanthus sp. JJ_001 (Fig. 43 and 44). This plant gave a chromosome number of 2n=32, and the root cells were separated distinguishly.

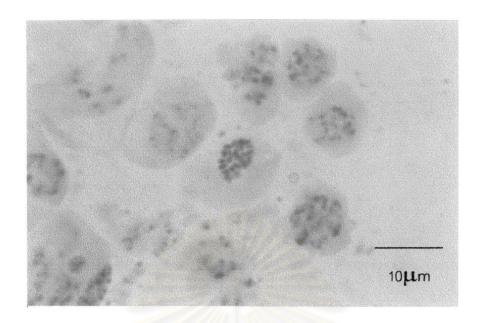
The chromosomes of all *Aeschynanthus* used in these experiments were very small, less than 1.5 micron in size. Even under the highest magnification (100X) of the

light microscope with blueish-colour hematoxylin staining method (for example, Fig. 44), these chromosomes appeared to be as small as dots. Because of this difficulty, type of each chromosome could not be indicated.

Table 9 A list of chromosome numbers of some Thai Aeschynanthus

Name	chromosome number
	counted in this study
Aeschynanthus andersonii	28
Aeschynanthus hildebrandiii	28
Aeschyna <mark>nthus humilis</mark>	28
Aeschynanthus obconicus	32
Aeschyna <mark>nthus radicans</mark>	32
Aeschynanthus sp. JJ_001	32





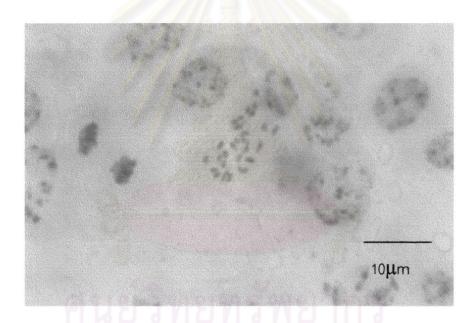
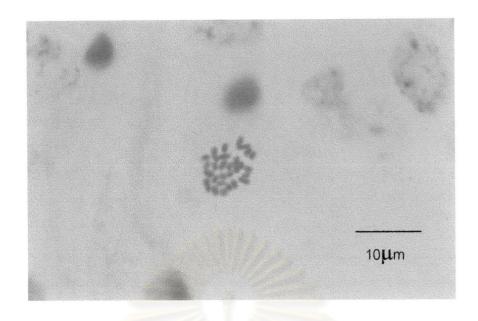


Fig. 37 Root tip cells of A. andersonii in metaphase showing an estimated chromosome number of 2n=28.



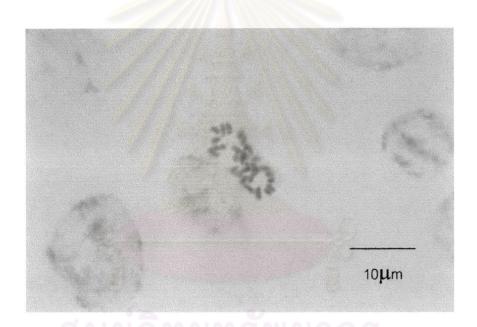
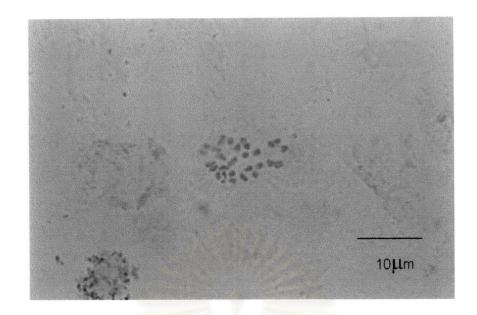


Fig. 38 Root tip cells of *A. humilis* in metaphase showing an estimated chromosome number of 2n=28.



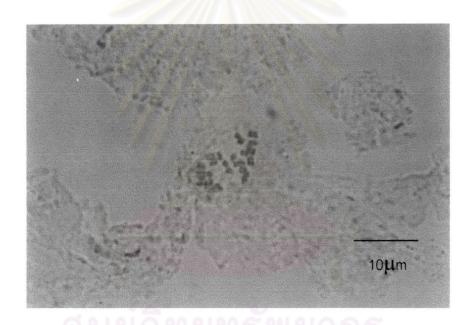
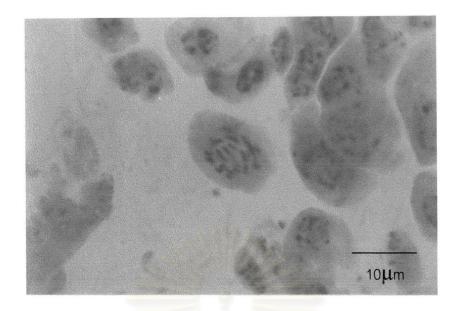


Fig. 39 Root tip cells of *A. hildebrandii* in metaphase showing an estimated chromosome number of 2n=28.



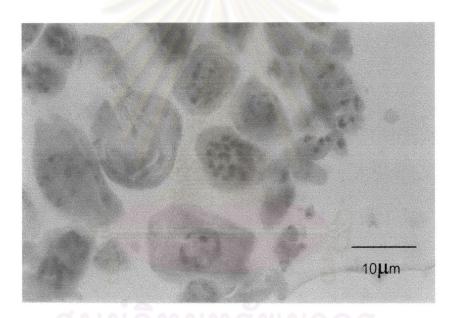


Fig. 40 Root tip cells of A. obconicus in metaphase showing an estimated chromosome number of 2n = 28, 2n = 32 from the top to the bottom.

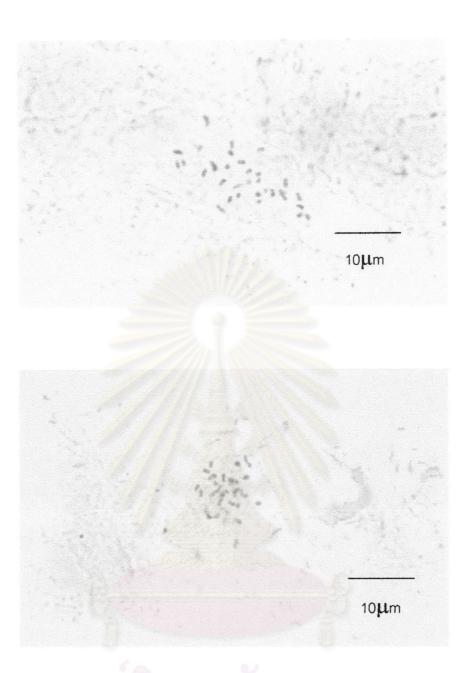


Fig. 41 Root tip cells of *A. radicans* in metaphase showing an estimated chromosome number of 2n=32.

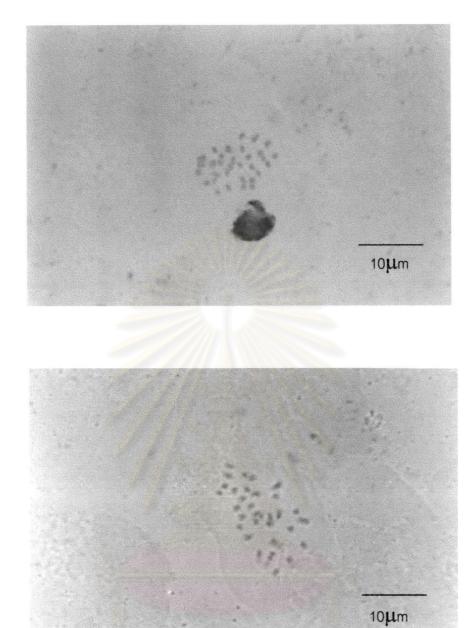
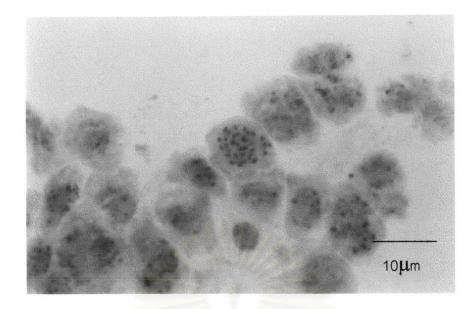


Fig. 42 Root tip cells of A. sp. JJ_001 in metaphase showing an estimated chromosome number of 2n=32.



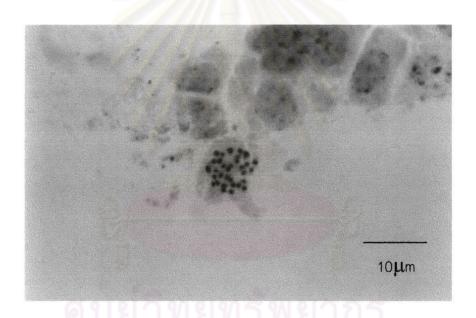


Fig. 43 Root tip cells of A. sp. JJ_001 in metaphase (stained with hematoxoxylin dye) showing an estimated chromosome number of 2n = 32.