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## APPENDIX

APPENDIX

**Table 4.4** Means and standard deviation of 23 quantitative characters of the eight clustering groupings of the *M. punctatum* (L.) Copel. complex.

Character	I		II		III		IV		V		VI		VII		VIII	
	mean	± SE	mean	± SE	mean	± SE	mean	± SE	mean	± SE	mean	± SE	mean	± SE	mean	± SE
LMW	37.63	3.33	16.30	2.34	72.64	26.81	78.10	11.75	68.93	10.83	39.33	10.58	96.53	16.45	58.94	21.12
LML	130.62	3.11	304.54	52.37	536.25	184.31	970.13	157.08	386.16	62.33	314.65	70.38	831.55	156.73	747.08	222.75
STL	40.68	2.31	34.19	1.05	138.66	6.54	19.23	1.71	64.84	4.44	62.34	4.61	0.47	0.12	101.8	7.53
STD	2.49	0.11	2.92	0.18	4.75	0.97	5.31	1.28	5.84	0.34	1.54	0.36	5.75	1.04	4.55	0.96
PDL	3.19	0.39	3.41	0.32	2.67	0.88	5.87	1.45	4.63	0.45	3.28	1.15	6.13	1.25	4.48	1.45
RHD	3.63	0.32	4.93	0.25	5.56	1.47	7.48	1.56	5.71	0.35	4.99	0.88	6.96	1.44	5.82	1.38
RDL	4	0.20	1.63	0.19	2.83	1.32	11.51	2.80	5.11	0.54	3.48	1.64	12.45	2.99	8.57	2.56
SCL	2.6	0.27	3.02	0.20	4.42	1.34	4.01	0.64	4.23	0.75	4.03	1.03	3.64	0.40	3.31	0.63
SCW	1.24	0.06	1.15	0.08	1.46	0.36	1.25	0.18	2.78	0.39	1.04	0.19	1.42	0.22	1.20	0.27
ALA	19.33	0.82	7.33	1.41	14.25	4.36	18.88	3.57	18.4	2.97	16.71	5.53	23.57	5.84	13.86	4.67
ALB	2.5	0.55	1.78	0.83	2.02	1.09	6.01	1.56	8.00	1.00	1.88	1.75	19.34	6.88	4.88	3.94
DSO	1.37	0.04	1.31	0.06	1.93	0.39	1.85	0.41	1.37	0.10	1.33	0.13	1.39	0.15	1.28	0.17
DSR	0.18	0.01	0.18	0.01	0.19	0.02	0.19	0.02	0.18	0.01	0.16	0.03	0.16	0.01	0.17	0.15
NAC	20.83	0.75	28.33	1.80	19.41	1.76	19.78	0.97	26.00	2.00	21.56	1.37	18.90	0.75	19.25	1.00
SPL	51.25	1.37	45.22	1.89	58.75	8.14	57.97	4.68	51.5	2.85	50.64	4.16	47.71	4.89	51.67	4.13
SPW	33.75	1.37	31.94	3.70	36.60	5.57	32.53	3.94	36.00	2.24	33.27	3.98	33.33	3.62	31.38	3.10
DSL	12	1.26	19.11	2.37	9.87	3.78	37.34	4.63	17.00	1.87	25.97	7.92	39.71	7.13	38.70	10.93
PLS	59.44	2.81	138.91	17.19	196.78	113.64	517.69	144.79	124.61	16.03	156.98	43.55	430.14	137.82	383.64	120.66
PHS	11.22	1.15	5.01	1.75	16.79	6.07	17.66	7.57	16.57	2.41	16.13	7.84	19.33	4.85	14.35	6.63
NSR	3.33	0.52	7.22	0.67	2.24	0.46	4.01	0.87	5.40	0.55	4.10	0.88	8.08	1.47	9.29	2.01
DBSV	7.1	0.64	16.22	0.63	10.03	2.36	8.66	1.68	11.64	1.75	9.05	1.87	13.27	1.95	13.45	2.84
APS	29.5	1.52	49.78	1.72	21.51	3.57	29.10	4.84	41.00	2.65	44.73	6.04	27.74	3.60	33.98	5.46
PAW	1.46	0.13	1.09	0.11	4.14	1.97	3.11	1.73	1.55	0.29	2.16	0.59	4.35	1.52	1.10	0.55



**Table 4.5** Summary of canonical discriminant function of eight clustering groups based on 23 quantitative characters.

<b>Function</b>	<b>Eigenvalue</b>	<b>% of Variance</b>	<b>Cumulative %</b>	<b>Canonical Correlation</b>	<b>Wilks' Lambda</b>	<b>Chi-square</b>	<b>df</b>	<b>Sig.</b>
1	43.628	77.6	77.6	.989	.000	6290.994	140	.000
2	7.141	12.7	90.3	.937	.005	3662.521	114	.000
3	2.761	4.9	95.2	.857	.041	2211.437	90	.000
4	1.469	2.6	97.8	.771	.154	1294.813	68	.000
5	.791	1.4	99.2	.665	.380	669.409	48	.000
6	.297	.5	99.8	.478	.681	266.016	30	.000
7	.133	.2	100.0	.342	.883	86.148	14	.000

**Table 4.6** Summary of canonical discriminant function of 21 taxa based on 23 quantitative characters.

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
1	46.351	75.4	75.4	.989	.000	7195.815	380	.000
2	7.616	12.4	87.8	.940	.001	4549.504	342	.000
3	3.267	5.3	93.1	.875	.011	3072.092	306	.000
4	1.656	2.7	95.8	.790	.048	2076.731	272	.000
5	.949	1.5	97.3	.698	.129	1406.509	240	.000
6	.686	1.1	98.4	.638	.251	948.607	210	.000
7	.368	.6	99.0	.519	.423	590.102	182	.000
8	.288	.5	99.5	.473	.579	374.949	156	.000
9	.108	.2	99.7	.312	.746	201.275	132	.000
10	.062	.1	99.8	.242	.826	130.810	110	.086
11	.044	.1	99.9	.206	.878	89.536	90	.494
12	.028	.0	99.9	.166	.916	59.853	72	.846
13	.019	.0	99.9	.136	.942	40.787	56	.937
14	.016	.0	100.0	.126	.960	28.017	42	.952
15	.011	.0	100.0	.104	.975	17.048	30	.972
16	.008	.0	100.0	.088	.986	9.582	20	.975
17	.004	.0	100.0	.061	.994	4.239	12	.979
18	.002	.0	100.0	.046	.998	1.647	6	.949
19	.000	.0	100.0	.016	1.000	.175	2	.916

**Table 4.7** Cross-validation summary with the linear discriminant function of the *M. punctatum* complex. ( I = *Microsorium siamense*, II = *M. thailandicum*, III = *M. membranaceum*, IV = *M. glossophyllum*, V = *M. steerei* var. *whiteheadii*, VI = *M. steerei* var. *steerei*, VII = *M. musifolium*, and VIII = *M. punctatum*)

From taxa	Classified in taxa							
	I	II	III	IV	V	VI	VII	VIII
<i>M. siamense</i>	6	0	0	0	0	0	0	0
<i>M. thailandicum</i>	0	9	0	0	0	0	0	0
<i>M. membranaceum</i>	0	0	86	0	0	0	0	0
<i>M. glossophyllum</i>	0	0	0	68	0	0	0	0
<i>M. steerei</i> var. <i>whiteheadii</i>	0	0	0	0	5	0	0	0
<i>M. steerei</i> var. <i>steerei</i>	0	0	0	0	0	39	0	0
<i>M. musifolium</i>	0	0	0	0	0	0	48	0
<i>M. punctatum</i>	0	0	0	0	0	0	0	446
<b>Total correctly classified</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

## **BIOGRAPHY**

Mr. Sahanat Petchsri was born on May 11, 1978, in Phatthalung Province. He was graduated in Biology from Faculty of Science, Prince of Songkla University in 1999. In 2002, he received his Master of Science in Botany from the Department of Botany, Faculty of Science, Chulalongkorn University, then continued his study in Biological Science Ph.D. Program, Faculty of Science, Chulalongkorn University from 2003-2008.