



Photo 7. 地生の *Phaius tankervillae*



Photo 8 *Thunia marshalliana*



Photo 9 園芸的にも興味ある *Cymbidium* sp.



Photo 9 カチン州北部の着生らん *Orsera* sp.

D. 考察

ミャンマーにはラン科植物は110属 847種が報告されている。今回確認されたものは157種である。この中で、*Dendrobium*属植物は全種183種の約1/3の68種類であった。中国で薬用にされているラン科植物は *Calanthe*, *Coelogyne*, *Cymbidium*, *Cyperipedium*, *Dendrobium*, *Ephemerantha*, *Eria*, *Galeola*, *Gastrodia*, *Gymnadenia*, *Habenaria*, *Ludisia*, *Luisia*, *Nervilia*, *Thunia* の15属で、24種が中国薬用植物図譜に記載されている。これらの多くはミャンマーにも分布していると思われる。

属の中で最も多くの薬用種を含むものはセッコク属 *Dendrobium* 7種(他の本では18種)です。セッコク属はマイヒメ(美花石斛) *Dendrobium loddigesii* Rolfe、テッピセッコク(鉄皮石斛) *D. candidum* Wall. ex Lindl.、ソクカセッコク(束花.石斛) *D. chrysanthum* Wall. ex Li *D. moniliforme* (L.) Sw. コウキセッコク(金釵石斛) *D. nobile* Lindl. を樹上で栽培し、計画的に出荷できるようになると思われる。

E. 結論

遺伝資源植物の保護と増殖は自然環境と調和して行わないと外来植物による固有のフローラの破壊を伴いかねない。今回の研究では、薬用ランをプラスチックで無菌栽培し、生育した株を原産地の森林に戻して、樹上で栽培する方法を確立した。ラン科植物はワシントン条約によって、手厚く保護されているものであるが、自然環境の中で栽培することによって、輸出が可能になる。薬用と観賞用の種類は異なるが、全く同じ方法で栽培が可能であると思われる。

F. 研究発表

1. 論文発表

- 1) Motoyoshi Satake, I-Jung Lee: Flowers in Myanmar, AROMA RESEARCH No.21,

Vol.6 94-97(2005)

- 2) Motoyoshi Satake, I-Jung Lee:Flowers in Myanmar, AROMA RESEARCH No.19, Vol.5, 83-89(2004)
- 3) Motoyoshi Satake, I-Jung Lee:Flowers in Myanmar, AROMA RESEARCH No.18, Vol.5, 88-91(2004)

2. 学会発表

なし

G. 知的財産権の出願・登録状況
なし

資料 1. ミャンマーのセッコク属植物

種名	産地
1 Dendrobium albosanguineum	Rakhine state. Central Myanmar and Lower Myanmar
2 Dendrobium anceps	Wide spread in Myanmar.
3 Dendrobium anosmum	Lower Myanmar.
4 Dendrobium anosmum alba	Lower Myanmar .
5 Dendrobium aphyllum	Wide spread in lower Myanmar, Itakhine scattered in Shan state.
6 Dendrobium bensoniae	Magwe Division, Sagaing Division.
7 Dendrobium bilobulatum	Rakhine and Shan state.
8 Dendrobium brymerianum	Northern Myanmar.
9 Dendrobium capillipes	Shan state, Chin state
10 Dendrobium carniferum	Kachin, Chin and Shan state.
11 Dendrobium chrysorepis	Shan state.
12 Dendrobium chrysotoxum	Wide spread in hilly regions of Myanmar.
13 Dendrobium chrysotoxum var suavissimum	Shan state, Kayan and Rakhine state.
14 Dendrobium chrysanthum	North Myanmar, Kayar and Shan State .
15 Dendrobium crepidatwn	Wide spread in Myanmar.
16 Dendrobium crumenatum	Lower Myanmar.
17 Dendrobium crystallinum	Wide spread in hilly region of Myanmar.
18 Dendrobium cumulatum	Shan State. Kachin state.
19 Dendrobium delacourii	Lower Myanmar, Rakhine and Shan state.
20 Dendrobium devonianum	Sagaing Division. Kachin and Shan state.
21 Dendrobium densiflorum	Chin state, Shan and Kachin state.
22 Dendrobium dixanthum	Mon, Kayin state, Bago and Mandalay Division.
23 Dendrobium draconis	Wide spread in hilly regions of Myanmar.
24 Dendrobium eriaeflorum	Yangon, Bago Division.
25 Dendrobium falconeri	Higher altitude of Shan state, Kachin and Chin state.
26 Dendrobium farmeri	Hilly regions of Myanmar.
27 Dendrobium fimbriatum	Fairly wide spread in Myanmar.
28 Dendrobium findalayanum	Bago Division, Mon. Kayin and Rakhine state.
29 Dendrobium findalayanum var maculatum	Rakhine state, Bago Division.
30 Dendrobium formosum	Lower Myanmar and Rakhine state.

31	<i>Dendrobium fytchianum</i>	Bago Division, Mon, Kayin State.
32	<i>Dendrobium griffithianum</i>	Shan state.
33	<i>Dendrobium harveyanum</i>	Shan State.
34	<i>Dendrobium heterocarpum</i>	Shan State, Kachin State.
35	<i>Dendrobium incurvum</i>	Rakhine, Shan and Kachin state.
36	<i>Dendrobium infundibulum</i>	Shan, Kachin, Rakhine and Chin state.
37	<i>Dendrobium jenkinsii</i>	Shan state. Kachin state.
38	<i>Dendrobium lindleyi</i>	Wide spread in Myanmar.
39	<i>Dendrobium longicornum</i>	Kachin state
40	<i>Dendrobium lituiflorum</i>	Shan state, Kachin state and Mandalay Division.
41	<i>Dendrobium moschatum</i>	Wide spread in Myanmar.
42	<i>Dendrobium monoliforme</i>	Kachin state.
43	<i>Dendrobium nobile</i>	Fairly wide spread in hilly regions of Myanmar.
44	<i>Dendrobium ochreatum</i>	Shan, Kachin and Chin state.
45	<i>Dendrobium pachyglossum</i>	Shan state.
46	<i>Dendrobium pachyphyllum</i>	Rakhine, Shan state.
47	<i>Dendrobium parishii</i>	Wide spread in hilly regions.
48	<i>Dendrobium parvum</i>	Wide spread in hilly regions.
49	<i>Dendrobium pendulum</i>	Chin, Shan and Kachin state.
50	<i>Dendrobium polyanthum</i>	Magwe and Mandalay Division.
51	<i>Dendrobium podogaria</i>	Rakhine and Shan state, Mandalay Division.
52	<i>Dendrobium primulinum</i>	Shan and Chin state.
53	<i>Dendrobium pulchellum</i>	Wide spread in Myanmar.
54	<i>Dendrobium revolutum</i>	Shan state
55	<i>Dendrobium rhodopterygium</i>	Rakhine state.
56	<i>Dendrobium scabrilingue</i>	Mon, Kayin, Kayah and Shan state.
57	<i>Dendrobium secundum</i>	Rakhine, Mon state. Tanintharyi Division and Bago Division.
58	<i>Dendrobium secundum alba</i>	Lower Myanmar.
59	<i>Dendrobium senile</i>	Shan state, Mon state and Tanintharyi Division.
60	<i>Dendrobium strongylathum</i>	Chin and Kachin state.
61	<i>Dendrobium stuposum</i>	Kachin state.
62	<i>Dendrobium sulcatum</i>	Kachin state.
63	<i>Dendrobium sutepense</i>	Shan state.
64	<i>Dendrobium thyrsoflorum</i>	Shan, Kachin and Chin state.
65	<i>Dendrobium tortile</i>	Mon state, Bagon Division.
66	<i>Dendrobium transparens</i>	Kachin state.
67	<i>Dendrobium trigonopus</i>	Shan state.
68	<i>Dendrobium wardianum</i>	Previously recorded in Shan State, now collected in Kachin state.

III. 研究成果の刊行に関する一覧表

雑誌

発表者氏名	論文タイトル名	発表誌名	巻号	ページ	出版年
Shitan, N., Kiuchi, F., Sato, F., Yazaki, K., Yoshimatsu, K.	Establishment of <i>Rhizobium</i> -mediated transformation of <i>Coptis japonica</i> and molecular analyses of transgenic plants	<i>Plant Biotechnology</i>	22(2)	113-118	(2005)
H. Noguchi	Active site residues governing substrate selectivity and polyketide chain length in aloesone synthase	<i>FEBS Journal</i>	273	208- 218	(2006)
I. Abe, T. Watanabe and H. Noguchi	Chalcone Synthase Superfamily of Type III Polyketide Synthases from Rhubarb (<i>Rheum palmatum</i>)	<i>Proc. Japan Acad.</i>	81, Ser. B	434- 440	(2005)
I. Abe, T. Watanabe, H. Morita, T. Kohno and H. Noguchi	Engineered Biosynthesis of Plant Polyketides: Manipulation of Chalcone Synthase	<i>Org. Lett.</i>	8(3)	499-502	(2006)
Putalun W, Tanaka H, Shoyama Y	Rapid detection of glycyrrhizin by immuno-chromatographic assay	<i>Phytochemical Analysis</i>	16	370-374	(2005)
Morinaga O, Fujino A, Tanaka H, Shoyama Y	An on-membrane quantitative analysis system for glycyrrhizin in licorice roots and traditional Chinese medicines	<i>Anal. Bioanal. Chem.</i>	383	668-672	(2005)
Fukuda N, Shan S, Tanaka H, Shoyama Y	New staining methodology: Eastern blotting for glycosides in the field of Kampo medicines	<i>J. Nat. Med.</i>	60(1)	21-27	(2006)
M. Umehara, I. Eguchi, D. Kaneko, M. Ono H., Kamada	Evaluation of gene flow and its environmental effects in the field	<i>Plant Biotechnology</i>	22(5)	497-504	(2005)
路川宗夫、今井清太、野水美奈、宮田佳奈、鎌田博	筑波大学構内の植物層 2004	筑波大学農林技術センター研究報告	18	15-35	(2005)
鎌田博	遺伝子組換え植物の現状と今後	FFIジャーナル	210(7)	603-608	(2005).
Motoyoshi Satake, I-Jung Lee	Flowers in Myanmar	AROMA RESEARCH	6 (21)	94-97	(2005)
Motoyoshi Satake, I-Jung Lee	Flowers in Myanmar	AROMA RESEARCH	5 (19)	83-89	(2004)
Motoyoshi Satake, I-Jung Lee	Flowers in Myanmar	AROMA RESEARCH	5 (18)	88-91	(2004)