

迷你型嘉德麗雅蘭種原開發應用

Germplasm Development and Application of Mini Cattleya

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一、前言

素有「洋蘭之王」美譽的嘉德麗雅蘭，原產地為中南美洲，她的花朵華麗碩大，常具有濃郁香味，品種繁多而冠蓋群蘭，是台灣最早期接觸的洋蘭，在 1944 年前日據時代，即有嘉德麗雅蘭愛好栽培。我國嘉麗雅蘭育種歷史悠久且成果斐然，近來因運輸成本、居家辦公空間等因素，育種目標有逐漸小型化的趨勢，迷你型嘉德麗雅蘭盆花育種日漸重要。

二、嘉德麗雅蘭親緣及種原蒐集

進行種原開發利用，必先了解其親緣關係遠近，學者 van den Berg 等人 (2009) 分析細胞核與葉綠體 DNA 序列，進行 Laeliinae 亞族之親緣分析，*Cattleya alliance* 聯屬，由 4 個原生種屬所組成，分別為眾所熟知的嘉德麗雅屬 (*Cattleya*，簡寫為 *C.*)、白拉索屬 (*Brassavola*，簡寫為 *B.*)、*Guarianthe* 屬 (簡寫，為 *Gur.*) 及喙蕾利亞屬 (*Rhyncholaelia*，簡寫為 *RL.*)，

此 4 近緣屬之屬間雜交容易，而有許多如屬名為 *Bc.*、*Bct.*、*Ctt.*、*Chz.*、*Rth.*、*Rlc.*、*Rcv.* 之屬間雜交品種育成。此外，還有 *Epidendrum alliance* 聯屬的樹蘭屬 (*Epidendrum*，簡寫為 *Epi.*)，*Laelia alliance* 聯屬的蕾利亞屬 (*Laelia*，簡寫為 *L.*)，*Broughtonia alliance* 聯屬的布魯通氏蘭屬 (*Broughtonia*，簡寫為 *Bro.*)，*Encyclia alliance* 聯屬的圈柱蘭屬 (*Encyclia*，簡寫為 *E.*) 與佛焰苞蘭屬 (*Prosthechea*，簡寫為 *Psh.*)，這些屬與 *Cattleya* 聯屬親緣稍遠，但也有一些屬間雜交成功的品種，如 *Lcn.*、*Sgr.*、*Lc.*、*Gct.*、*Ctna.*、*Pcv.*、*Pry.*、*Epy.* 屬等。本研究主要蒐集株高低於 20 公分之迷你品種，共有原生種及 *Cattleya* 屬內雜交及上述屬間雜交 17 類種原，共 95 個品系，迷你型約有 70 個品系 (表一)，記錄 2021 年 8 月至 2022 年 12 月 30 進行之雜交組合，並追蹤雜交成功果莢播種發芽情形。

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研究成果

表一、本研究蒐集之嘉德麗雅蘭種原

種原類別	蒐集品種 (系)
<i>Cattleya</i> 聯屬內原生種及雜交品種 (系)	
原生種	<i>C. alajorii</i> , <i>C. jongheana</i> var. <i>alba</i> 'Wilson', <i>C. pumila</i> , <i>C. maxima</i> var. <i>alba</i> 'Koenigin Sylva', <i>C. coccinea</i> , <i>C. cernua</i> x sib, <i>C. violacea</i> *, <i>C. violacea</i> var. <i>coerulea</i> x sib, <i>C. violacea</i> var. <i>flamea</i> x sib, <i>C. nobilior</i> var. <i>coerulea</i> x sib, <i>C. walkeriana</i> x sib, <i>C. walkeriana</i> var. <i>alba</i> , <i>C. walkeriana</i> var. <i>coerulea</i> 'Terra Azul', <i>Gur. aurantiaca</i> 'Mishima Spot' x self, <i>Rl. glauca</i>
<i>Cattleya</i> (C.)	<i>C. Hawaiian Splash</i> , <i>C. alajorii</i> x <i>C. walkeriana</i> , <i>C. Irene Teo Lai Kheng</i> 'Little Fireball', <i>C. Jungle Beau</i> , <i>C. Cherry Bee</i> 'Happy Field', <i>C. Chester</i> x <i>C. cernua</i> , <i>C. Seagulls Tiny Tim</i> , <i>C. New Year's Gift</i> x <i>C. cernua</i> , <i>C. Tangerine Fire</i> 'Mini Sun', <i>C. Chian-Tzy Guiding</i> '千姿狀元紅', <i>C. Button Top</i> , <i>C. Jungle Eyes</i> , <i>C. Royal Cognac</i> 'Wilson', <i>C. Sea Breeze</i> , <i>C. Sea Breeze</i> 'Fellrath's Pride', <i>C. Mini Song</i> 'Fantasy', <i>C. Cariad's Mini-Quinee</i> 'Angel Kiss', <i>C. Crystelle Smith</i> 'Nathan's Reward', <i>C. Love Castle</i> 'K', <i>C. Shirayukihome</i> 'M', <i>C. Pure Soul</i> 'Yutaka Morimoto', <i>C. Chief White</i> 'May Breeze'
<i>Brassocattleya</i> (Bc.)	<i>Bc. Yu Young Star</i> 'YT'
<i>Brassocatanthe</i> (Bct.)	<i>Bct. Little Mermaid</i>
<i>Cattlianthe</i> (Ctt.)	<i>Ctt. Faikon Ball</i> , <i>Ctt. Beautiful Sunday</i> 'Jupiter', <i>Ctt. Little Hazel</i> , <i>Ctt. Little Hazel</i> 'M', <i>Ctt. Chief Berry</i> 'Berry', <i>Ctt. Japanese Beauty</i> , <i>Ctt. Chian-Tzy Angel Land</i> '千姿美神', <i>Ctt. Doris and Byron</i> 'Christmas Rose'
<i>Cahuzacara</i> (Chz.)	<i>Chz. Hsinying Pink Doll</i> 'Pink Doll'
<i>Rhyncattleanthe</i> (Rth.)	<i>Rth. Alpha Plus Orange</i> , <i>Rth. Burana Angel</i> 'Hsinying', <i>Rth. Petitpetit Carnival</i> , <i>Rth. Smile Beauty</i> 'Tainan', <i>Rth. Happy Sunset</i> , <i>Rth. Burana Beauty</i> 'Burana', <i>Rth. Hsinying Starlight</i> 'Pink Lady', <i>Rth. Hsinying Fancy Gold</i> 'Oct. Firework', <i>Rth. Hsinying Fancy Gold</i> 'Super', <i>Rth. Yen Orange</i> 'Martin', <i>Rth. Nell Hammer</i> 'CB414', <i>Rth. Petit Patti</i> 'Lucky', <i>Rth. Chief Sunny</i> , <i>Rth. Young-Min Orange</i> 'Golden Satisfaction', <i>Rth. Hsinying Orange Nugget</i> 'Orange Queen', <i>Rth. Shinfong Little Sun</i> 'Youngmin Golden Boy'
<i>Rhyncholaeliocattleya</i> (Rlc.)	<i>Rlc. Ruby Ace</i> 'Abe', <i>Rlc. Chian-Tzy Goldenorange</i> , <i>Rlc. Chief Jewel</i> , <i>Rlc. California Queen</i> 'Red Angel', <i>Rlc. Hsinying Dream</i> 'Violet Queen', <i>Rlc. Husky Boy</i> 'Michael', <i>Rlc. Husky Boy</i> 'Romance', <i>Rlc. Hsinying Sunbeam</i> 'Auranti-Gem', <i>Rlc. Hsinying Sunbeam</i> 'Juliets', <i>Rlc. Hsinying Aloha</i> 'C.H. Super', <i>Rlc. Fong Yuan Beauty</i> 'Da-Hsin #7', <i>Rlc. Emperor Gold</i> 'Golden Emperor', <i>Rlc. Hsinying Yellowbird</i> 'Sunburst', <i>Rlc. Chunfong Little Sun</i> 'KW', <i>Rlc. Hsinying Boy</i> 'Gypsy', <i>Rlc. Chyong Guu Linnet</i> 'Smile', (<i>Rl. digbyana</i> x <i>C. Button Top</i> '東京'), '千姿雪鶴', <i>Rlc. Envy</i> x (<i>Rlc. Golf Green</i> x <i>C. Kat Green Cherry</i> '小丸子'), <i>Rlc. Beauty Girl</i> 'C.U. Kova'
<i>Rhynchovola</i> (Rcv.)	<i>Rcv. Jimminy Cricket</i> 'Super Bug'
Laeliinae 亞族聯屬間雜交品種 (系)	
<i>Laeliocatanthe</i> (Lcn.)	<i>Lcn. Tzeng-Wen Lace</i> x <i>C. Memoria Robert Strait</i>
<i>Sergioara</i> (Sgr.)	<i>Sgr. Yokosuka Story</i> 'Little Oriole'
<i>Laeliocatathron</i> (Lcr.)	<i>Cll. Snowflake</i> x <i>C. Mildred</i>
<i>Laeliocattleya</i> (Lc.)	<i>C. Red Jewel</i> x <i>L. anceps</i> , <i>Lc. Hsin Buu Lady</i> 'Red Beauty', <i>C. Beaufort</i> x <i>L. rubescens</i> , (<i>C. Pink Splash</i> x <i>C. cernua</i>) x <i>L. rubescens</i>
<i>Guaricattonia</i> (Gct.)	<i>Gct. Anzac Jewel</i> 'Kitty', <i>Gct. Chien Ya Ocean</i> , <i>Gct. Hsinying Why Not</i> 'Long Life', <i>Gct. Sogo Doll</i> 'Little Angel'
<i>Cattleytonia</i> (Ctna.)	<i>Ctna. Peggy San</i>
<i>Procatavola</i> (Pcv.)	<i>Pcv. Golden Peacock</i>
<i>Prosrhyncholeya</i> (Pry.)	(<i>Pry. Chief Green River</i> x <i>Ctyh. Netrasiri Fine-Green</i>) '千姿奇異果'

*：為株高大於 20 公分之非迷你型嘉德麗雅蘭

三、親緣遠近對屬間雜交之影響

本研究共進行約 912 個雜交組合，有 69 組合經果莢成熟、播種發芽成功，雜交成功率約 7.6%。因品種多達 95 種，以屬分群計算雜交情形 (表二)。*Cattleya alliance* 聯屬內之屬間雜交，除了可能因 *Bct.* 屬之 *Bct.* Little Mermaid、*Rcv.* 屬之 *Rcv.* Jimminey Cricket ‘Super Bug’ 為母本，*Bc.* 屬之 *Bc.* Yu Toung Star ‘YT’ 為父本之雜交組合數太少 ($n=3$ ，3 與 $n=6$)，而無雜交後代，其餘各屬不論為父母本，都有機會產生後代，顯示 *Cattleya alliance* 聯屬內之近緣屬間雜交較容易。在原生種及 *Cattleya* 屬當父本成功率 12.1% 及 7.4%，高於當母本的 5.9% 及 5.4%，且授粉於 *Lcn.* 屬上，成功率達 60% 與 20%。*Bc.* 屬之 *Bc.* Yu Toung Star ‘YT’ 作母本，即使組合數少 ($n=3$)，但高達 2 組合播種順利發芽。其餘

包括 *Ctt.*、*Chz.*、*Rth.*、*Rlc.* 屬不論做為父母本，都有一些雜交後代產生，雜交成功率介於 4.5~20% 之間。*Laeliinae* 亞族聯屬間雜交品系，其基因組背景親緣較遠，包括 *Lcn.*、*Lc.*、*Gct.*、*Pcv.*、*Pry.* 屬為父本，授粉於各屬所有品系，共 86 個組合，完全無雜交後代，或許與因減數分裂配對困難，無法產生有效花粉有關；但 *Lcn.* 屬之 *Lcn.* Tzeng-Wen Lace x *C.* Memoria Robert Strait 與 *Gct.* 屬之 *Gct.* Hsinying Why Not ‘Long Life’ 為母本，分別成功播種出 5 個與 3 個屬間雜交品系 (表三)，顯示若利用這些遠緣嘉德麗雅蘭品系進行育種，宜作為母本，此現象似乎亦存於蝴蝶蘭雜交育種。高度雜交之蝴蝶蘭商業品種，或許為 $2n=3x$ 或 $5x$ 等多倍體，僅能作為母本，透過大量雜交而能產生後代，若作為花粉親，通常無功而返。

表二、嘉德麗雅蘭種原類別雜交成功率 (播種發芽組合數 / 雜交組合數)

母本 \ 父本	原生種	<i>C.</i>	<i>Bc.</i>	<i>Ctt.</i>	<i>Chz.</i>	<i>Rth.</i>	<i>Rlc.</i>	<i>Lcn.</i>	<i>Lc.</i>	<i>Gct.</i>	<i>Ctna</i>	<i>Pcv.</i>	<i>Pry.</i>	以母本計數
原生種	0% ^a 0/9 ^b	6.7% 2/30	- ^c	0% 0/18	100% 1/1	14.3% 2/14	4.8% 1/21	0% 0/3	0% 0/6	-	-	-	-	5.9% 6/102
<i>Cattleya (C.)</i>	11.9% 5/42	3.3% 2/61	0% 0/1	12.1% 4/33	0% 0/4	7.7% 3/39	0% 0/51	0% 0/5	0% 0/8	0% 0/6	0% 0/2	0% 0/1	0% 0/3	5.4% 14/257
<i>Brassocattleya (Bc.)</i>	50% 1/2	100% 1/1	-	-	-	-	-	-	-	-	-	-	-	66.7% 2/3
<i>Brassocatanthe (Bct.)</i>	0% 0/1	0% 0/1	-	0% 0/1	-	-	-	-	-	-	-	-	-	0% 0/3
<i>Cattlianthe (Ctt.)</i>	5.6% 1/18	17.9% 5/28	-	10% 2/20	50% 1/2	17.6% 3/17	12% 3/25	0% 0/3	0% 0/4	0% 0/2	0% 0/2	0% 0/1	-	12.2% 15/123
<i>Cahuzacara (Chz.)</i>	33.3% 1/3	0% 0/5	-	0% 0/3	-	66.7% 2/3	0% 0/2	-	-	0% 0/1	-	-	-	17.6% 3/17
<i>Rhyncattleanthe (Rth.)</i>	11.1% 3/27	9.8% 4/41	0% 0/2	4.8% 1/21	-	0% 0/16	0% 0/12	0% 0/4	0% 0/2	0% 0/3	0% 0/1	-	0% 0/1	6.2% 8/130
<i>Rhyncholaeliocattleya (Rlc.)</i>	14.3% 3/21	6.7% 3/45	0% 0/1	25% 6/24	0% 0/1	0% 0/13	7.7% 1/13	0% 0/6	0% 0/3	0% 0/1	0% 0/1	0% 0/1	-	10% 13/130

母本 \ 父本	原生種	C.	Bc.	Ctt.	Chz.	Rth.	Rlc.	Lcn.	Lc.	Gct.	Ctna	Pcv.	Pry.	以母本計數
<i>Rhynchochola</i> (Rcv.)	0% 0/1	0% 0/1	-	-	-	-	-	0% 0/1	-	-	-	-	-	0% 0/3
<i>Laeliocatanthe</i> (Lcn.)	60% 3/5	20% 1/5	-	0% 0/2	0% 0/1	0% 0/4	25% 1/4	-	-	0% 0/1	-	-	0% 0/1	21.7% 5/23
<i>Laeliocatarthron</i> (Lcr.)	0% 0/2	0% 0/3	-	0% 0/3	-	-	-	-	-	-	-	-	-	0% 0/8
<i>Laeliocattleya</i> (Lc.)	0% 0/6	0% 0/13	0% 0/1	0% 0/6	0% 0/1	0% 0/6	0% 0/2	0% 0/1	-	0% 0/2	-	-	-	0% 0/38
<i>Guaricattonia</i> (Gct.)	10% 1/10	10% 1/10	-	14.3% 1/7	-	0% 0/7	0% 0/3	0% 0/1	0% 0/2	0% 0/1	-	-	0% 0/1	7.1% 3/42
<i>Cattleytonia</i> (Ctna.)	-	0% 0/3	0% 0/1	0% 0/1	-	0% 0/2	-	-	-	-	-	0% 0/1	0% 0/1	0% 0/9
<i>Procatavola</i> (Pcv.)	0% 0/2	0% 0/4	-	0% 0/2	-	0% 0/4	-	-	-	-	-	-	-	0% 0/12
<i>Prosrhyncholeya</i> (Pry.)	-	0% 0/6	-	-	-	0% 0/2	-	0% 0/1	-	-	0% 0/1	-	-	0% 0/11
以父本計數	12.1% 18/149	7.4% 19/258	0% 0/6	9.9% 14/141	20% 2/10	7.9% 10/127	4.5% 6/133	0% 0/25	0% 0/26	0% 0/17	0% 0/7	0% 0/4	0% 0/7	

a: 雜交成功率 b: 播種發芽組合數 / 雜交組合數 c: 未進行雜交

四、種原為母本或父本對屬間雜交之影響

原生種及各雜交屬內各品種 (系) 做為母本或父本，對雜交成功率亦有影響。選取 30 品系之雜交結果舉例說明 (表三)。結果可分為 4 種類型，類型 I：當母本較容易產生雜交後代；類型 II：當父本較容易產生雜交後代；類型 III：當父母本都具有後代，屬於容易育種之材料；類型 IV：當父母本幾乎無後代，屬於不容易育種之材料。整體而言，原生種及 *Cattleya* 聯屬當父本成功率較高 (表二)，但不同品種仍有差異，如 *C. alarii*、*C. violacea* var. *coerulea*、*C. Tangerine Fire* ‘Mini Sun’ 都屬第 I 型，為母本雜交成功率高 (表三)；*C.*

pumila、*C. nobilior* var. *coerulea* 則只能做父本，屬第 II 型；*C. walkeriana* var. *coerulea* ‘Terra Azul’、*C. Mini Song* ‘Fantasy’、*C. Chief White* ‘May Breeze’ 當父母本都具有後代，屬於容易育種之材料，屬類型 III；而 *C. jongheana* var. *alba* ‘Wilson’ 當父母本都無後代，屬類型 IV，為不容易育種之材料。其他如 *Ctt.*、*Rth.*、*Rlc.* 等屬也有這些類別差異的品種。在 *Laeliinae* 亞族聯屬間雜交品系，以 *Lcn.* Tzeng-Wen Lace x *C. Memoria Robert Strait* 為母本，播種育成 5 個雜交品系；若作為父本，各品系皆無法成功雜交播種。因此進行嘉德麗雅蘭育種時，多了解以選取為母本或父本，提高雜交成功率，可以獲得較多的雜交後代。

表三、種原為母本或父本之雜交成功率及發芽組合

(類型) 種原	雜交成功率 為母本	(發芽組合數) 為父本	發芽組合
(I) <i>C. alarii</i>	50% (2/4)	0% (0/8)	<i>C. alarii</i> x <i>C. Love Castle</i> 'K' <i>C. alarii</i> x <i>C. Sea Breeze</i> 'Fellrath's Pride'
(II) <i>C. pumila</i>	0% (0/23)	15.8% (6/38)	
(IV) <i>C. jongheana</i> var. <i>alba</i> 'Wilson'	0% (0/9)	0% (0/3)	
(I) <i>C. violacea</i> var. <i>coerulea</i>	50% (1/2)	12.5% (1/8)	(<i>C. violacea</i> var. <i>coerulea</i>) x <i>Rth. Petit Patti</i> 'Lucky'
(II) <i>C. nobilior</i> var. <i>coerulea</i>	0% (0/5)	33.3% (3/9)	
(III) <i>C. walkeriana</i> var. <i>coerulea</i> 'Terra Azul'	15.4% (2/13)	30.8% (4/13)	<i>C. walkeriana</i> var. <i>coerulea</i> 'Terra Azul' x <i>Chz. Hsinying Pink Doll</i> 'Pink Doll' <i>C. walkeriana</i> var. <i>coerulea</i> 'Terra Azul' x <i>Rth. Petit Patti</i> 'Lucky'
(II) <i>C. alarii</i> x <i>C. walkeriana</i>	3.2% (1/31)	12.8% (5/39)	(<i>C. alarii</i> x <i>C. walkeriana</i>) x <i>Rth. Petit Patti</i> 'Lucky'
(I) <i>C. Tangerine Fire</i> 'Mini Sun'	10.5% (2/19)	4.3% (1/23)	<i>C. Tangerine Fire</i> 'Mini Sun' x <i>C. Tangerine Fire</i> 'Mini Sun' <i>C. Tangerine Fire</i> 'Mini Sun' x <i>Ctt. Chief Berry</i> 'Berry'
(III) <i>C. Mini Song</i> 'Fantasy'	66.7% (2/3)	33.3% (1/3)	<i>C. Mini Song</i> 'Fantasy' x <i>C. walkeriana</i> <i>C. Mini Song</i> 'Fantasy' x <i>Ctt. Chief Berry</i> 'Berry'
(II) <i>C. Love Castle</i> 'K'	5.9% (1/17)	10% (3/30)	<i>C. Love Castle</i> 'K' x (<i>C. violacea</i> var. <i>coerulea</i> x sib)
(III) <i>C. Chief White</i> 'May Breeze'	23.8% (5/21)	13.3% (6/45)	<i>C. Chief White</i> 'May Breeze' x <i>C. walkeriana</i> x sib <i>C. Chief White</i> 'May Breeze' x <i>C. Mini Song</i> 'Fantasy' <i>C. Chief White</i> 'May Breeze' x <i>Ctt. Chief Berry</i> 'Berry' <i>C. Chief White</i> 'May Breeze' x <i>Rth. Hsinying Fancy Gold</i> 'Super' <i>C. Chief White</i> 'May Breeze' x <i>Rth. Petit Patti</i> 'Lucky'
(I) <i>Bc. Yu Toung Star</i> 'YT'	66.7% (2/3)	0% (0/6)	<i>Bc. YU Toung Star</i> 'YT' x <i>C. pumila</i> <i>Bc. YU Toung Star</i> 'YT' x <i>C. alarii</i> x <i>C. walkeriana</i>
(IV) <i>Ctt. Faikon Ball</i>	3.7% (1/27)	0% (0/21)	<i>Ctt. Faikon Ball</i> x <i>Rth. Hsinying Fancy Gold</i> 'Super'
(III) <i>Ctt. Chief Berry</i> 'Berry'	14.6% (6/41)	27.5% (14/51)	<i>Ctt. Chief Berry</i> 'Berry' x <i>Ctt. Chief Berry</i> 'Berry' <i>Ctt. Chief Berry</i> 'Berry' x <i>Chz. Hsinying Pink Doll</i> 'Pink Doll' <i>Ctt. Chief Berry</i> 'Berry' x <i>Rth. Yen Orange</i> 'Martin' <i>Ctt. Chief Berry</i> 'Berry' x <i>Rlc. Hsinying Aloha</i> 'C.H. Super' <i>Ctt. Chief Berry</i> 'Berry' x <i>Rlc. Hsinying Sunbeam</i> 'Juliets' <i>Ctt. Chief Berry</i> 'Berry' x <i>C. Chief White</i> 'May Breeze'
(I) <i>Ctt. Doris and Byron</i> 'Christmas Rose'	50% (5/10)	0% (0/14)	<i>Ctt. Doris and Byron</i> 'Christmas Rose' x <i>C. walkeriana</i> var. <i>coerulea</i> 'Terra Azul' <i>Ctt. Doris and Byron</i> 'Christmas Rose' x <i>C. Button Top</i> <i>Ctt. Doris and Byron</i> 'Christmas Rose' x <i>C. Crystelle Smith</i> 'Nathan's Reward' <i>Ctt. Doris and Byron</i> 'Christmas Rose' x <i>Rth. Nell Hammer</i> 'CB414' <i>Ctt. Doris and Byron</i> 'Christmas Rose' x <i>Rlc. Hsinying Aloha</i> 'C.H. Super'
(III) <i>Chz. Hsinying Pink Doll</i> 'Pink Doll'	17.6% (3/17)	20% (2/10)	<i>Chz. Hsinying Pink Doll</i> 'Pink Doll' x <i>C. walkeriana</i> <i>Chz. Hsinying Pink Doll</i> 'Pink Doll' x <i>Rth. Petit Patti</i> 'Lucky' <i>Chz. Hsinying Pink Doll</i> 'Pink Doll' x <i>Rth. Chief Sunny</i>
(I) <i>Rth. Burana Beauty</i> 'Burana'	28.6% (2/7)	0% (0/5)	<i>Rth. Burana Beauty</i> 'Burana' x <i>C. pumila</i> <i>Rth. Burana Beauty</i> 'Burana' x (<i>C. alarii</i> x <i>C. walkeriana</i>)
(II) <i>Rth. Hsinying Fancy Gold</i> 'Super'	0% (0/6)	50% (2/4)	
(II) <i>Rth. Petit Patti</i> 'Lucky'	8% (2/25)	13.5% (5/37)	<i>Rth. Petit Patti</i> 'Lucky' x <i>C. Love Castle</i> 'K' <i>Rth. Petit Patti</i> 'Lucky' x <i>Lc. Chief White</i> 'May Breeze'
(IV) <i>Rlc. Chian-Tzy Goldenorange</i>	0% (0/24)	0% (0/12)	
(I) <i>Rlc. Husky Boy</i> 'Michael'	18.2% (2/11)	0% (0/5)	<i>Rlc. Husky Boy</i> 'Michael' x <i>Ctt. Chief Berry</i> 'Berry' <i>Rlc. Husky Boy</i> 'Michael' x <i>Lc. Chief White</i> 'May Breeze'
(III) <i>Rlc. Hsinying Sunbeam</i> 'Auranti-Gem'	33.3% (1/3)	20% (1/4)	<i>Rlc. Hsinying Sunbeam</i> 'Auranti-Gem' x <i>Ctt. Chief Berry</i> 'Berry'
(II) <i>Rlc. Fong Yuan Beauty</i> 'Da-Hsin #7'	0% (0/4)	28.6% (2/7)	
(I) <i>Rlc. Chunfong Little Sun</i> 'KW'	75% (3/4)	0% (0/6)	<i>Rlc. Chunfong Little Sun</i> 'KW' x (<i>C. walkeriana</i>) <i>Rlc. Chunfong Little Sun</i> 'KW' x <i>Ctt. Chief Berry</i> 'Berry' <i>Rlc. Chunfong Little Sun</i> 'KW' x <i>C. Chief White</i> 'May Breeze'
(I) <i>Rlc. Hsinying Boy</i> 'Gypsy'	20% (1/5)	0% (0/5)	<i>Rlc. Hsinying Boy</i> 'Gypsy' x <i>Ctt. Chief Berry</i> 'Berry'
(I) <i>Rlc. Beauty Girl</i> 'C.U. Kova'	20% (1/5)	0% (0/8)	<i>Rlc. Beauty Girl</i> 'C.U. Kova' x <i>C. pumila</i>
(I) (<i>Lcn. Tzeng-Wen Lace</i> x <i>C. Memoria Robert Strait</i>) x <i>C. violacea</i>	21.7% (5/23)	0% (0/25)	(<i>Lcn. Tzeng-Wen Lace</i> x <i>C. Memoria Robert Strait</i>) x <i>C. violacea</i> var. <i>coerulea</i> (<i>Lcn. Tzeng-Wen Lace</i> x <i>C. Memoria Robert Strait</i>) x <i>C. walkeriana</i> var. <i>coerulea</i> 'Terra Azul' (<i>Lcn. Tzeng-Wen Lace</i> x <i>C. Memoria Robert Strait</i>) x <i>Rlc. Hsinying Yellowbird</i> 'Sunburst' (<i>Lcn. Tzeng-Wen Lace</i> x <i>C. Memoria Robert Strait</i>) x <i>C. Chief White</i> 'May Breeze'
(IV) <i>Lc. Hsin Buu Lady</i> 'Red Beauty'	0% (0/18)	0% (0/5)	
(IV) <i>Gct. Anzac Jewel</i> 'Kitty'	0% (0/19)	0% (0/2)	
(I) <i>Gct. Hsinying Why Not</i> 'Long Life'	33.3% (3/9)	0% (0/3)	<i>Gct. Hsinying Why Not</i> 'Long Life' x <i>C. pumila</i> <i>Gct. Hsinying Why Not</i> 'Long Life' x (<i>C. alarii</i> x <i>C. walkeriana</i>) <i>Gct. Hsinying Why Not</i> 'Long Life' x <i>Ctt. Chief Berry</i> 'Berry'

研究成果



C. pumila



C. violacea var. *coerulea*



C. walkeriana var. *coerulea* 'Terra Azul'



C. alaorii x *C. walkeriana* 具香味



C. Sea Breeze 'Fellrath's Pride' 花大



C. Tangerine Fire 'Mini Sun'



C. Mini Song 'Fantasy' 具香味、花大



C. Love Castle 'K' 花大



C. Chief White 'May Breeze'



C. Button Top



Bc. YU Toun Star 'YT'



Ctt. Faikon Ball



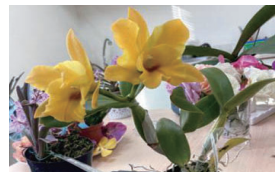
Ctt. Chief Berry 'Berry'



Ctt. Doris and Byron 'Christmas Rose' 具香味



Chz. Hsinying Pink Doll 'Pink Doll' 具香味、花大



Rth. Nell Hammer 'CB414' 花大



Rth. Burana Beauty 'Burana'



Rth. Petit Patti 'Lucky'



Rlc. Hsinying Aloha 'C.H. Super' 具香味、花大



Rlc. Hsinying Sunbeam 'Auranti-Gem'



Rlc. Chunfong Little Sun 'KW'



Rlc. Hsinying Boy 'Gypsy'



Lcn. Tzeng-Wen Lace x *Cattleya Memoria Robert Strait*



Gct. Hsinying Why Not 'Long Life'

圖 1. 蒐集迷你型或大花具香味且雜交後有後代之種原 (部分)

五、結語

透過大規模的雜交紀錄追蹤，結果顯示如同學者 van den Berg 等人之親緣遠近分析，影響屬間雜交結果甚鉅，*Cattleya alliance* 聯屬內之屬間雜交播種育成率，明顯高於此聯屬與其他聯屬間之雜交，聯屬

間 (親緣背景複雜者) 之種原作為母本有利雜交成功獲得後代。本研究所蒐集之迷你型種原，透過屬間雜交導入大花、花色鮮豔或具香味之性狀，期許已種發芽所獲得之 69 個雜交組合中，能選拔到矮株、大花、具香味且花色宜人之優良新品系。