

生物技術

在生物技術方面，進行番茄抗黃化捲葉病毒分子標誌輔助育種，已經開發快速 PCR 技術在苗期篩選抗病後代，目前已經成功有償讓與種苗業者兩個番茄抗病品系，快速萃取大量樣本 DNA 技術已進行技術移轉申請。

建立苦瓜及番茄之 SSR 分子標誌鑑定品種技術，可成功鑑定 20 個番茄品種與 38 個苦瓜品種 (系)。

水稻低穗上發芽分子標誌輔助育種中，針對穗上發芽進行數量遺傳性狀基因座之定位，結果顯示於台梗 16 號第一條染色體上可能具有已知之低穗上發芽數量遺傳性狀基因座 (qSD1/Sdr6) 影響穗上發芽率，可以利用此數量基因座分子標誌進行低穗上發芽率之育種。

組織培養方面，建立報歲蘭、四季蘭等小花蕙蘭及綬草、白及、紫苞舌蘭等台灣原生蘭之組織培養繁殖體系，以量產種苗。

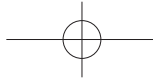


Biotechnology

We are engaged in the breeding of TYCLV-resistant tomato assisted by molecular markers. Rapid polymerase chain reaction technology that screens TYCLV-resistant offspring during the seedling stage was developed. Two resistant tomato lines with Ty-2 gene were transferred to seed companies successfully. In addition, the rapid DNA extraction technique was applied for technique authorization.

We created technology that identifies varieties of bitter melon and tomatoes by using the simple-sequence repeat (SSR) molecular markers. This technology can successfully identify 20 tomato varieties and 38 bitter melon varieties.

Regarding the rice pre-harvest sprouting breeding assisted by molecular markers, pre-harvest sprouting resistance and molecule marker for rice breeding were analyzed. We developed single nucleotide polymorphism (SNP) markers based on the documented quantitative trait loci (QTLs) of pre-harvest sprouting and seed dormancy. The result showed that a seed dormancy QTL was identified at the distal end of short arm chromosome 1 in the population. There was one QTL(qSD1/sdr6) found from parents analysis providing low pre-harvest sprouting



in rice 'Taikeng No. 16'. In the result, the QTL related functional marker can be an effective tool for low pre-harvest sprouting marker assisted breeding.

Regarding tissue culture, we developed a reproductive system for the tissue culture of *Cymbidium* such as *Cymbidium sinense* and *Cymbidium ensifolium*, as well as Taiwan native orchids such as *Spiranthes sinensis* (Pers.) Ames, *Bletilla formosana* (Hay.) Schltr. and *Spathoglottis plicata blume* to facilitate the mass production of seedlings.

