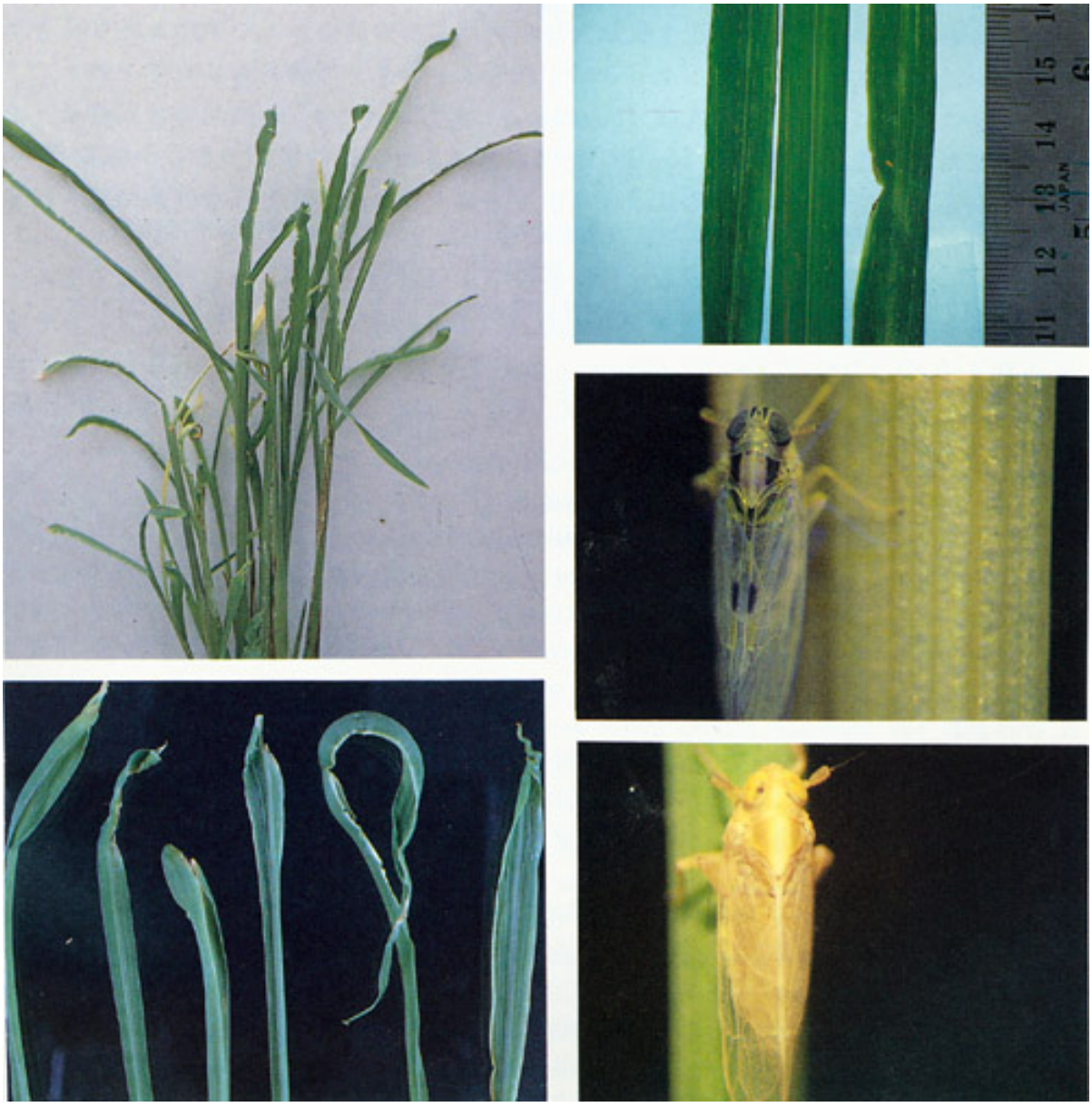
稗草皺縮矮化病之病徵、寄主範圍、傳播及病原性質

Echinochloa ragged stunt: Symptomatology, Host range, transmission and properties of virions



稗草皺縮矮化病之病徵及媒介昆蟲：
1) 罹病株；2) 葉片皺縮、缺刻；3) 沿葉脈形成癭狀小突起；4) 媒介昆蟲(擬白背飛蝨)之雄性成蟲及 5) 雌性成蟲。
Symptoms and vector planthopper of ERSV.
1) Echinochloa plant infected with ERSV. 2) Ragged leaves characteristics of ERSV infection. 3) Small galls along veins of ERSV infected leaves. 4) and 5) *Sogatella longifurcifera* planthoppers, ♂ and ♀, respectively.

稗草皺縮矮化病之病徵、寄主範圍、傳播及病原性質

稗草皺縮矮化病於民國69年首次發現，其主要病徵爲分蘖增多、植株明顯矮化，葉色濃綠、葉緣形成鋸狀缺刻，並於罹病莖葉形成白色脈紋突起。罹病株多不能抽穗，能抽穗者抽穗期顯著延遲，產生空殼粒。除水稗外，在田間小米、小麥亦爲其自然寄主植物。試驗寄主包括黑麥草、玉米、水稻、龍爪稷、白茅、野稗及看麥娘等七種。

稗草皺縮矮化病由擬白背飛蝨(*Sogatella longifurcifera*)以持續性方式傳播。病毒在蟲體內之潛伏期爲9.3日(6~17日)。最短獲毒及接種時間分別爲2小時及30分鐘。本病毒不能經卵傳播，亦不能以機械方法傳播，但以病毒汁液注射稗草幼苗，約有5%注射株能表現病徵。

稗草皺縮矮化病毒粒子由雙層蛋白鞘組成，直徑約80nm。蛋白鞘內層具B突起，外層具A突起。病毒核酸由10條雙股核醣核酸(dsRNAs)遺傳基因段組成，其分子量大小範圍0.61×10^6~2.8×10^6daltons，總分子量爲17.89×10^6 daltons。病毒之核蛋白由5個主要蛋白即129K, 123K, 63K, 50K及34K daltons及2個次要蛋白113K及88.1K daltons所組成。

Echinochloa ragged stunt was a new virus disease first found in central Taiwan in 1980 with characteristic symptoms on *Echinochloa crus-galli* var. *oryzicola* that included excessive tillering, severe dwarfing and the production of malformed leaves with serrated margins and veinal swellings. Infected plants appeared darker green than normal. They failed to head or showed a delay in heading time to result in the formation of empty grains. Besides *E. eras-gain* var. *oryzicola*, *Setaria italica* and *Triticum aestivum* were found to be other natural host plants of ERSV. Seven gramineous plant species experimentally infected with ERSV were *Lolium nmltiflomm*, *Zea mays*, *Oryza saliva*, *Eleusine coracana*, *Imperata cylindrica*, *E. crus-galli* var. *formosensis*, and *Alopeculus oeqnalis*.

The planthopper *Sogatella longifurcifera* transmitted ERSV in a persistent manner. The virus had an incubation period of 9.3 days (a range of 6 to 17 days) in the insect vector. The minimal acquisition and inoculation access periods were 2 hrs and 30 mins., respectively. No transovarial passage was observed. Rubbing of *E. crus-galli* leaves with virus did not result in plant, infection. However, about 5% of *E. crus-galli* seedlings became infected when virus crude sap was injected into veinal tissues.

The particles of ERSV ca. 80 nm in diameter are composited of double shells with A-spikes and B-spikes. ERSV has a genome that comprises 10 segments of dsRNAs in the size range from 0.61×10^6 to 2.8×10^6 daltons. The whole genome size was estimated to be 17.89×10^6 daltons. Virions contained five major proteins of 129K, 123K, 63K, 50K and 34K daltons, and two minor proteins of 113K and 88.1K daltons.

(圖文由陳慶忠先生提供)