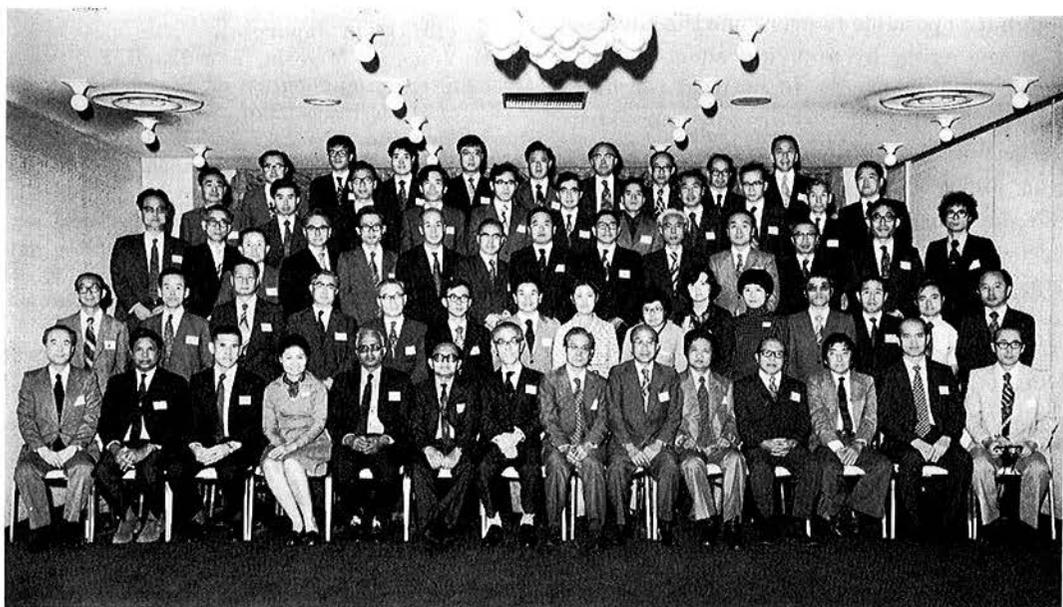


International Symposium on Virus Diseases of Tropical Crops

Sponsored by

Tropical Agriculture Research Center, Ministry of Agriculture and Forestry, Japan

September 28 to October 3, 1976



There are great difficulties in agricultural production in tropical areas, among which diseases and insect pests are major ones. Especially, plant virus diseases are causing great damage to almost every kinds of crop.

As for these virus disease problems, remarkable progress was made in recent years. For example, new electron microscopic techniques, discovery of mycoplasma-like pathogens, virus disease control by resistant crop varieties, vaccination method with attenuated virus, etc.

Since 1967, Ministry of Agriculture and Forestry has held yearly international symposia on some specific topics of tropical agri-

culture. The symposium for 1975, is the 10th one and the topic is focused on "Virus diseases of tropical crops", in response to the increasing demand on the virus research information.

The purpose of this symposium was to understand mutually, the virus disease situation in respective countries and to exchange information on virus research problems. The symposium was held during 6 days from September 28 to October 3, 1976, at Conference Hall, Do Sports Plaza, Koto-ku, Tokyo.

The number of participants from foreign countries was; 2 each from Indonesia and Thailand, 1 each from India, Malaysia, Sri

Lanka, the Philippines, Brazil and IRRI (Philippines). Including Japanese participants and observers, total attendants were over 50. The program of the symposium and speakers in each session were as follows:

Country Report Session

(September 28, 13:00-16:15)

Chairmen;

- Papers (1)-(4) P. Shivanathan
(Sri Lanka)
(5)-(7) Luansark Wathanakul
(Thailand)
- (1) M. D. Mishra (India) Progress and trends of virus research in India
 - (2) I. N. Oka (Indonesia) Virus diseases of food crops in Indonesia and their control
 - (3) W. P. Ting & C. A. Ong (Malaysia) Plant virology in Peninsular Malaysia
 - (4) D. A. Benigno (Philippines) Plant virus diseases in the Philippines
 - (5) P. Shivanathan (Sri Lanka) Virus diseases of crops in Sri Lanka
 - (6) Nualchan Deema (Thailand) Virus diseases of economic crops in Thailand
 - (7) A. S. Costa & E. W. Kitajima (Brazil) Virus problems of crop plants in Brazil; Past and present

Technical Report Session

(Sept. 29, 9:30-Sept. 30, 17:00)

Chairmen;

- Papers (1)-(2) D. A. Benigno
(Philippines)
(3)-(4) W. P. Ting
(Malaysia)
(5)-(6) Nualchan Deema
(Thailand)
(7)-(9) I. N. Oka
(Indonesia)
(10)-(11) M. D. Mishra
(India)
(12)-(13) T. Soelaeman

- (Indonesia)
(14)-(15) N. Oshima (Japan)
(16)-(18) Y. Komuro (Japan)
- (1) T. Soelaeman (Indonesia) A Possible relationship between stem pitting and citrus vein phloem degeneration (CVPD)
 - (2) M. Sugiura, T. Shiomi & T. Mizukami (Japan) Artificial culture of plant pathogenic mycoplasma-like organism (MLO)
 - (3) F. Nakasuji & K. Kiritani (Japan) Epidemiology of rice dwarf virus in Japan
 - (4) E. Shimura (Japan) Rice breeding for resistance to rice virus diseases in Japan
 - (5) M. D. Mishra (India) Investigations on rice tungro virus in India
 - (6) H. Inoue & S. Ruay-aree (Japan, Thailand) Bionomics of green rice leaf hopper and epidemics of yellow orange leaf virus disease in Thailand
 - (7) A. Shinkai (Japan) Rice waika, a new disease found in Kyushu, Japan
 - (8) Y. Saito (Japan) Interrelationship among waika disease, tungro and other similar diseases of rice in Asia
 - (9) K. C. Ling (IRRI, Philippines) Recent studies on rice tungro disease at IRRI
 - (10) P. Shivanathan (Sri Lanka) A seed borne virus of *Phaseolus aureus* (Roxb)
 - (11) H. Koganezawa (Japan) Purification and properties of rice stripe virus
 - (12) A. C. Ong and W. P. Ting (Malaysia) A review of plant virus diseases in Peninsular Malaysia
 - (13) Luansark Wathanakul & Praphas Weerapat (Thailand) Yellow orange leaf virus disease in

Thailand

- (14) I. Takebe (Japan) Protoplasts: A unique material for plant virus research
- (15) Y. Nagai (Japan) Control of the mosaic disease of tomato by seedling inoculation with the attenuated strain of TMV
- (16) T. Inouye (Japan) Rice necrosis mosaic, a soil-borne virus disease
- (17) D. A. Benigno, M. A. Favali-Hedayat & M. L. Retuerma (Philippines) Determination of the morphologies of plant viruses in the Philippines by electron microscopy
- (18) E. W. Kitajima (Brazil) The possibilities of the use of the electron microscope in helping the diagnosis of plant virus diseases

General Discussion Session

(Oct. 1, 9:30-12:00)

Chairmen; I. N. Oka (Indonesia)
H. Kitajima (Japan)
H. Fujii (Japan)

Some of the highlight topics discussed during the Symposium are summarized as follows:



Virus diseases of rice plants

During this symposium, 16 reports were presented on rice virus disease, which were about 60% of total ones.

At present, 14 rice virus diseases are re-



ported in the world, among which 10 diseases were taken up in the above 16 reports. They were grassy stunt, hoja blanca, orange leaf, tungro, yellow dwarf, black streaked dwarf, dwarf, necrosis mosaic, stripe and waika. Other 4 diseases, viz. giallume reported in Europe, yellow mottle in Africa, transitory yellowing in Taiwan and yellow stunt in Mainland China were not discussed.

In tropical Asian countries, tungro is rather common and most serious. Recently, a tungro-like virus disease was also found in southern Japan, which is called waika (meaning stunt) disease. Several papers were presented in this symposium on virus strain, insect vector problems, epidemiology, etc. Especially, virus particles of tungro and similar diseases including waika were studied by electron microscope. It was proved that 2 types of virus particles, spherical- and bacilli-form ones were related to the disease. The disease seemed to be incited by single- or double-infection of these 2 types of virus particles.

Virus diseases of citrus

A mycoplasma disease, generally called "citrus greening", is quite serious and common in tropical Asia. It is also called Likubin in Taiwan, yellow shoot in Mainland China, Leaf mottling in the Philippines, Vein phloem Degeneration in Indonesia and Dieback or Decline in India. However, detailed cooperative studies are not yet made on these

diseases and pathogens.

Other important virus disease called "tristeza" is also discussed. Sometimes stem-pitting or seedling yellows are included in tristeza-group, and the exact identification of these diseases was one of the most important problems in Asian countries. Recently in Brazil, new tristeza virus strain occurred and gave serious damage in wide area of citrus orchard. The effective control measure was established by vaccinating citrus seedlings with attenuated tristeza virus strain.

Virus diseases of legumes

Many kinds of virus diseases were reported in this symposium. Bean golden mosaic transmitted by white fly in Brazil, cowpea witches' broom in Indonesia, groundnut mosaic in Malaysia and mungbean mosaic in Thailand were serious ones among them. Japanese

virologists started their researches in some of these tropical countries under the cooperation with scientists in each country.

Micellaneous problems

Some of the up-to-date topics were also reported on virus researches. Artificial culture of mycoplasma-like organisms, use of protoplasts in virus infection study, morphological studies of virus particles by electron microscope, plant vaccination with attenuated virus strains, etc.

In the final session, international cooperation problems were presented and discussed. Exchange of information, researchers, seeds of index plants, anti-sera, etc. was requested from foreign participants and TARC expressed to make their efforts in cooperating with tropical countries in these fields of virus research.