

### Annoucement

JARQ has been reporting the highlight of research results and practical experiences obtained in Japan with an objective of disseminating up-to-date information on what are going on and what have been done in agricultural research in Japan to our overseas friends. Articles which have appeared in JARQ were almost exclusively related to Japanese agriculture, covering crop production, animal production, agricultural engineering and machineries and food technology.

From this issue onwards, however, JARQ will contain a special section for tropical agriculture, in which research findings obtained by the Tropical Agriculture Research Center in cooperation with research organizations abroad will be presented in the form of quick report of the Center.

It is hoped that this section will increase the usefulness of JARQ for our overseas friends.

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Noboru Yamada  
Chairman  
Editorial Board

### Strain of *Xanthomonas oryzae* and its bacteriophage in Thailand

An attempt has been made in this experiment to identify strains of *X. oryzae* and its bacteriophage in Thailand in comparison with Japanese ones. Samples of the bacterial leaf blight of rice were collected from every part of the country in 1972 and 1973.

Isolation of the causal organism was made by the standard isolation method for bacterial leaf blight of rice with potato peptone sucrose agar.

Isolation of the bacteriophage was done by cutting diseased leaves into small pieces, shaking them for a few minutes with sterile water, and plating a part of the water with culture media and bacteria isolated from the same leaf. Appearance of phage plaques within 12 to 15 hours on the plate indicates the presence of the bacteriophage. Bacteriophage was stocked in vitamin free casein hydrolysate solution.

Bacteriophage strain were examined by

streak method using a mixture of 2 ml of bacterial suspension and 5 ml of melted potato peptone sucrose agar. Bacteriophage solution was streaked on to the plate surface using a sterilized loop, and incubated at 30°C for about 15 hours. Appearance of the clear zones indicates the sensitivity of the bacterium to that particular bacteriophage.

Result is shown in Table 1. Bacteriophage of *Xanthomonas oryzae* in Thai is classified into five types and isolates of *X. oryzae* fall into eleven groups (A,B,C,D,E,F,G,H,I,J and K) concerning with their relative sensitivities to the five bacteriophage strains. Since proper naming should be based not only on morphology and serology but also on characteristics compared with phages in other countries, tentative names were given to five types of Thai bacteriophage as TBP<sub>1</sub>, TBP<sub>2</sub>, TBP<sub>3</sub>, TBP<sub>4</sub>, and TBP<sub>5</sub>.

Bacterial strain B and C are the most dominant ones distributed all over the country. Strain A, the most sensitive one against all kinds of Thai bacteriophage which is useful for the forecasting of this disease in Thailand, was found in Southern Thailand.

Table 1. Strains of bacteriophage and *Xanthomonas oryzae* in Thailand

Bacterial strain		Thai phage					Japanese phage				Nos. of isolates
		TBP <sub>1</sub>	TBP <sub>2</sub>	TBP <sub>3</sub>	TBP <sub>4</sub>	TBP <sub>5</sub>	OP <sub>1</sub>	OP <sub>1h</sub>	OP <sub>1h2</sub>	OP <sub>2</sub>	
Thai	A	+	+	+	+	+	+	—	+	+	2
	B	+	+	+	+	—	—	+	+	+	30
	C	+	+	+	—	+	—	—	+	+	35
	D	+	+	—	+	—	—	+	+	+	3
	E	+	+	—	—	+	—	—	+	+	7
	F	+	—	+	+	—	—	—	+	+	3
	G	+	—	+	—	—	—	+	—	+	2
	H	+	—	—	+	—	—	—	—	—	9
	I	—	—	+	—	—	—	—	—	+	19
	J	—	—	—	+	—	—	—	+	—	4
	K	—	—	—	—	—	—	—	—	—	11
Japanese	A	—	—	—	—	—	+	—	+	+	
	B	+	+	+	+	—	—	+	+	+	
	C	—	—	—	—	—	—	—	—	—	
	D	—	—	—	—	—	—	—	+	+	
	E	—	—	—	—	—	—	—	—	+	

Thai bacteriophages were distinctly different from those of Japanese ones. But Thai strain B and Japanese strain B of *X. oryzae* showed similar sensitivities against all kind of Thai and Japanese bacteriophages. Therefore, it is clear that Thai strain B and Japanese strain B of *X. oryzae* belong to the same group with respect to bacteriophage reaction. This is an interesting discovery of the common phage reaction of *X. oryzae* strain among different countries.

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### Infection source of the bacterial leaf blight of rice in Thailand

In Thailand, rice plants can be grown almost all year round and in some places stubbles remain alive in fields even in the off season. This phenomenon is considered to be most favorable for the survival of the causal organism from season to season. Present study was made to know the seasonal occurrence of leaf blight bacteria in irrigation water during the off season in 1973 and 1974 at Bangkhen Rice Experiment Station, Thailand. The detection of bacteria in water was made by means of the bacteriophage method. The phage method is designed to grasp indirectly the tendency of bacterial population by determining the number of phages which increase with the multiplication of bacteria.

Counting method of bacteriophage population in test water was as follows; 1 ml of irrigation water collected was mixed with 1 ml of the bacterial suspension and 5 ml of melted potato peptone sucrose agar medium at 43-45°C. Resultant mixture in Petri