

# RICE BREEDING FOR HEAT TOLERANCE

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The team who works for heat tolerance rice breeding included the IAS's biotechnology department, Cuu Long Delta Rice Research Institute, Dong Thap Muoi Research and Development Centre. Thanks are due to the fund supported by MARD and Korea project.

Twenty one and ten crosses were made by the IAS and CLRRRI, respectively. F<sub>2</sub> and BC<sub>2</sub> were developed to set up RIL and BC mapping populations. Combined heat tolerance, drought, high yielding and resistance to BPH and blast were designed by CLRRRI team.



Figure 1. Breeding materials

The initial activities were carried out for further studies as followed:

146 rice accessions were used to assess the heat tolerance under natural condition.

Protocol was setting up how to phenotype drought stress in phytotron (growth chamber) at the critical temperature of over 36<sup>0</sup>C

Nine genotypes were identified to become donors in rice breeding including Dular

Thirty eight SSRs were used to analyze the genetic divergence via UPGMA model.

Two target markers were recognized the high polymorphism as

RM3588	GAAGAGAGAGCCAGAGCCAG ACACGATCGAGCTAGAAGACG	on chromosome 3
RM3537	GCGACCGATCAGCTAGCTAG ATAACTCCTCCCTTGCTGCC	on chromosome 4

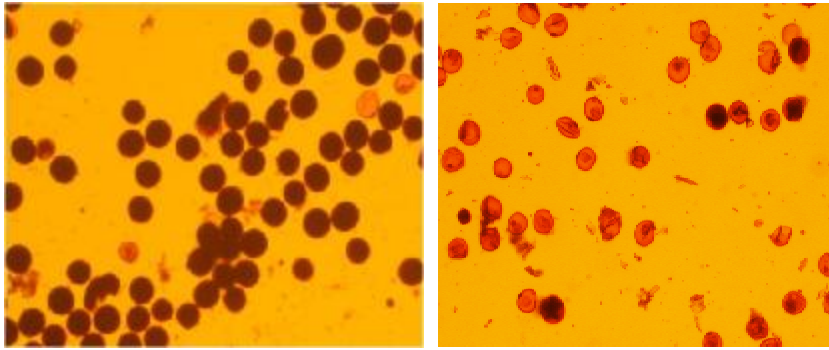


Figure 2. Iodine reaction among pollens collected in heat treatment vs normal one (1% iodine potassium iodide: IKI)

Table 1. Growth chamber temperature set up with relative humidity of 75%

Time	$^{\circ}\text{C}$
07:00-08:00	29
08:00-10:00	34
10:00-12:00	37
12:00-14:00	39
14:00-15:00	37
15:00-16:00	34
16:00-18:00	30
20:00-07:00	24 (darkness)



Figure 3. Pollen observation with microscope 10X