

Genetic and Breeding Studies on the
Progenies of *Oryza nivara* Sharma et Shastry. x *O. sativa* L.

I. Interspecific Cross Compatibility and
Behaviors of Their F₁ Hybrids.

Soon-Fa Tai¹, Shu-Tu Wu² and Fu-Sheng Thseng²

ABSTRACT

In order to study the genetic and breeding behavior of the hybrid between wild species *O. nivara* and cultivated rice *O. sativa*, the *O. nivara* strains Acc101507, Acc101508, Acc101509 were crossed to japonical varieties Taichung 65, Shiokari and ID-47. Seventeen F₁s of normal and reciprocal crosses were studied with regard to cross compatibility, chromosome behavior and other agronomic characters. The experimental results may be summarized as follows.

It was found that the cross compatibility between *O. nivara* and Taichung 65 was higher than that of crosses between *O. nivara* and ID-47 and Shiokari. The normal and reciprocal crosses showed the same degree on their cross compatibility.

The meiotic chromosome pairings of 17 F₁s from normal and reciprocal crosses of wild x cultivar were all normal, however the rate of normal pollens of the hybrids differed greatly from different parental wild strains. The rate of normal pollens of the crosses using Acc101508 was higher than 80%, but that of the crosses using Acc101507 and Acc101509 ranged 0-7% only.

F₁ weakness and lethal could not be found in the crosses of two species, *O. nivara* and *O. sativa*. The hybrid vigor in terms of grain yield per plant was observed in the crosses between Acc101508 and Taichung 65 and ID-47. Days to heading of Acc101508 x ID-47 showed not similar as that of other crosses.

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1. Kaohsiung District Agricultural Improvement Station, Taiwan, R. O. C.
 2. Department of Agronomy, National Chung-Hsing University, Taichung, Taiwan, R. O. C.