

GAMETOCIDAL ACTION OF INSECTICIDES ON RICE POLLEN

It is known that physiologically active chemicals such as growth regulators, fungicides and **insecticides** affect the viability of the pollen grains adversely. Insecticides are now-a-days widely used even during the flowering stage, to control the late pests of rice such as leaf roller and **earhead** bugs. It is however not known whether the insecticides affect the viability of rice pollen in any way. In order to ascertain the direct effect of insecticides on the pollen grains the latter were brought in direct contact with the insecticides and their viability tested using the acetocarmine staining method of Zirkle (1937).

The insecticides used were endrin and parathion. The **gametocidal** effect of these insecticides to rice pollen was ascertained by dusting the pollen grains from stamens on glass slides spraying them with emulsions **containing graded concentrations** of the insecticides under a Potter's **Spraying** Tower (using 1 cc of the emulsion for each spraying), keeping the sprayed pollen under moist conditions within petridishes (on wet blotting paper) for half an hour and staining with **acetocarmine**. The stained pollen grains were examined under a microscope and their mortalities recorded out of a total of 100 pollen grains under each treatment. Those pollen grains which were uniformly stained within were considered unaffected and viable (Fig. 1). The pollen grains affected by the insecticides could be observed in a burst condition (Fig. 2). In the case of the pollen treated with parathion the bursting resulted in their internal contents coming out of the pollen on all the sides and getting distributed all around (Fig. 3). In the pollen treated with endrin, however, the bursting took place only at one point, the internal contents emerging out only at that point (Fig. 4). It may be seen from Table I that even at low concentrations the insecticides caused considerable bursting of the pollen grains.

Table 1
Percentage bursting of rice pollen caused by different concentrations
of endrin and parathion

Insecticide concentration (percent)	Endrin	Parathion
0.01	85.4	...
0.02	92.5	89.2
0.04	97.0	93.4
0.08	...	100
Control	Nil	...

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Reference

Zirkle, C. 1937. Acetocarmine mounting media, *Science*, 85: 528
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