

The Effect of Clethodim Herbicide on Rice

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The increase in the number of herbicide-resistant weeds in rice and the spread of red rice grasses have led to the need for new control methods. In addition to new developed herbicides, resistance to existing herbicides is seen as an alternative method. Herbicide resistance systems were developed such as IMI Rice, Provisia Rice and Roxy Rice that are resistant to Imidazolinone, Quizalofop-P-Ethyl, and Oxyfluorfen, respectively. It is anticipated that there might be a need for new active chemical substances in the future. In this study, the effect of clethodim herbicide was investigated to it might be utilized in herbicide resistance studies. Dose–response curves based on the log-logistic model were used to determine the effective dose that provides 90% (ED₉₀) to control. Initially, 250 rice varieties were scanned to clethodim at a dose of 1× (150 g ai ha⁻¹), and it was determined that all varieties were killed. In the greenhouse experiment, 8 rates of clethodim, 0, 1/16, 1/8, 1/4, 1/2, 1, 2, 4×, were applied to Osmancik-97 rice variety and red rice, and ED₉₀ was determined as 86 g and 80 g ai ha⁻¹ clethodim, respectively. In the field study, 8 clethodim doses were applied to 3 rice varieties and their effects were investigated under field conditions. The experiment was carried out randomized blocks design with 3 replications in Gelemen and Bafra locations in 2020. According to field experiment result, Edirne, Osmancik-97, and Kocamaninci had ED₉₀ dose 103, 96, and 67 g ha⁻¹ clethodim, respectively. The applied herbicide rates significantly reduced the grain yield. It was also effective to red rice control. Clethodim was found to be an appropriate herbicide to be used in resistance studies.

Keywords: Clethodim, dose response, red rice, rice.

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