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Herbicidal characteristics of MT-147, a novel glycol benzyl ether as a graminicide in paddy rice

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Abstract:

The herbicidal performance of MT-147, (2*R*,3*S*,3*aS*,9*bR*)-2-ethyl-3-(2-fluorobenzoyloxy)-6,7-methylenedioxy-3,3*a*,5,9*b*-tetrahydro-2*H*-furo[3,2-*c*][2]benzopyran, was examined as a graminicide for paddy rice. MT-147 completely controlled barnyardgrass from pre-emergence up to the 2.0-leaf stage at 300 g a.i./ha by submerged application; however, the efficacy decreased as the leaf stage proceeded further. The herbicidal activity of MT-147 was not influenced by water depth, but it was slightly affected by the seeding depth of barnyardgrass, the activity being lower when the seeding depth was deeper. MT-147 had no phytotoxicity to transplanted rice at 300 g a.i./ha but phytotoxicity was observed when rice seedlings were placed on the soil surface and the roots were exposed to water. Bromobutide remarkably increased the herbicidal activity of MT-147 against barnyardgrass. In this study, it was revealed that a novel 3,3*a*,5,9*b*-tetrahydro-2*H*-furo[3,2-*c*][2]benzopyran, MT-147, has excellent herbicidal activity against barnyardgrass, and its activity was enhanced by bromobutide.

Keywords:

3,3*a*,5,9*b*-tetrahydro-2*H*-furo[3,2-*c*][2]benzopyran, MT-147, bromobutide, barnyardgrass, transplanted rice

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