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Herbicidal activity of a new paddy bleaching herbicide, benzobicyclon

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Abstract:

The herbicidal activity and properties of a novel paddy herbicide, benzobicyclon [3-(2-chloro-4-mesylbenzoyl)-2-phenylthiobicyclo[3.2.1]oct-2-en-4-one], were examined under flooded conditions. Benzobicyclon showed broad-spectrum activity at doses of 200–300 g a.i./ha when applied from pre-emergence to early post-emergence against annual grass, sedge, and broadleaf weeds in paddy. Benzobicyclon has excellent selectivity of transplanted rice. The most significant herbicidal symptom was bleaching. Benzobicyclon had a wide application window and controlled *Scirpus juncooides* up to 5 leaf stages, which is difficult to control throughout the season using other paddy herbicides. Benzobicyclon controlled *S. juncooides* much faster under high temperature (25°C) than under low temperature (15°C); however, the herbicidal efficacy was almost the same, regardless of the temperature, when the leaf stage of the untreated control was the same. The residual activity of benzobicyclon on *S. juncooides* lasted for at least 8 weeks. The herbicidal activity of benzobicyclon at doses of 200–300 g a.i./ha was not affected by the emergence depth (0–3 cm) of *S. juncooides* or soil types (clay loam, loam, light clay, sandy loam, and heavy clay). Moreover, benzobicyclon controlled sulfonylurea herbicide-resistant biotypes as well as wild-type weeds.

Keywords:

benzobicyclon, herbicidal activity, *Scirpus juncooides*, bleaching, paddy, sulfonylurea resistant

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