T7 Stabilization Research of Simeconazole Contained in Granules

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Simeconazole is a systemic fungicide with a wide range of spectrum and it' s useful for controlling rice sheath blight, falase sumt and kernel sumt. The compound has been developed in several formulations including granules. Granules are easy to apply in a rice paddy field and the granular formulation has become widespread. In case of preparing the extruded granules, bentonite is commonly used as a carrier for reasons of its excellent plasticity. However, it turned out that simeconazole in granules containing bentonite was easily decomposed during storage depending on the content of water and bentonite in the granules. In this research, we investigated the stabilization of simeconazole in the granules containing bentonite during accelerated storage tests. As a result, simeconazole decomposition behavior during accelerated storage depending on water and bentonite contents was quantitatively clarified and rational granular formulation design using bentonite aimed at simeconazole stabilization is possible by adding ethylene glycol, polyethylene glycol, propylene glycol, or polypropylene glycol as stabilizers. Stability of simeconazole was dependent on the content of ethylene oxide or propylene oxide units, but independent of the kind of the stabilizers except ethylene glycol. It was suggested that water having proton-donating ability in the interlayer of bentonite caused simeconazole decomposition and interaction between the stabilizer and the water led to its stabilization.