Influence of biochar on the degradation of acetochlor on Chinese cabbage (*Brassica chinensis var chinensis*) and soil under greenhouse conditions

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Abstract: Biochar has good absorption ability and can reduce the migration and transformation characteristic of contaminants, and thus has gotten wide attention in recent years, especially in the control of pesticide application in agricultural production. We studied the Influence of biochar on degradation dynamics of acetochlor on Chinese cabbage and soil under greenhouse conditions by LC-MS after residue determination using the Quick, Cheap, Effective, Rugged and Safe (QuEChERS) method. The result showed that, at the application dosage of 5% (v/v) biochar in the rooted soil, and the acetochlor doses of 675 g a.i.·ha^{-1} on low dose treatment and 1012.5 g a.i.·ha^{-1} on high dose treatment, the degradation dynamics of acetochlor on Chinese cabbage and soil were all followed first-order kinetics. In the biochar added soil, the half-lives of acetochlor were both 6.93 days of the low and high treatment, while in the blank soil, the values were both 9.90 days of the two treatments. In Chinese cabbage, the half-lives of acetochlor were all 4.62 days of the low and high treatment, with biochar added soil and the blank soil. The results showed that biochar was effective on the degradation of acetochlor in soil, while in Chinese cabbage, the effect was not so obvious.

Keywords: biochar; Chinese cabbage; degradation dynamics