

Effects of different washing methods on chlorpyrifos residues in vegetables

With the irrational use of pesticides, more and more attention has been paid to the harm of pesticide residues in vegetables to human health and life safety. For this reason, [washing machine](#)



The Regulations on the Quality and Safety of Agricultural Products in Jiangsu Province, which came into effect on September 1, 2011, clearly stipulate the quality and safety of agricultural products in Jiangsu Province. With the prohibition of high toxicity and high residue pesticides in vegetables and fruit trees, chlorpyrifos has become one of the most widely used pesticides in vegetables. At present, there are many studies on organophosphorus pesticide residues in vegetables [1-4]. From the perspective of strengthening the supervision of the quality and safety of agricultural products, the author points out that there are many diseases and insect pests in vegetables and pesticides are used in summer. [Microwave sterilization machinery and equipment](#)

Pesticide residues in vegetables were tested in seasonal high temperature season. Taking eggplant, green pepper and tomato as representatives, chlorpyrifos pesticide was sprayed on vegetables, and samples were taken 1, 3, 5, 7, 9, 11 and 13 days after application. The effects of different washing methods on chlorpyrifos pesticide residues in vegetables were quantitatively detected by gas chromatography.

2.3.2 Changes of pesticide residues in green pepper. Green pepper receives more pesticides and more pesticide residues. Considering the cover of green pepper leaves, there is a certain

degree of unevenness in the amount of Medicine received by green pepper. As shown in Table 3, Meisheng Fruit and Vegetable Cleaning (T5) has the best washing effect on pepper residues, followed by Mr. Weimeng's detergent (T6), White Cat Fruit and Vegetable Cleaning Agent (T7), and Rice Cleaning Water (T8). When chlorpyrifos was sprayed on green pepper, the pesticide residues decreased from 2.68 mg/kg to 0.02-0.39 mg/kg on the 1st to 9th day, and were not detected on the 11th day. 2.3.3 Changes of pesticide residues in tomatoes. Tomatoes received more pesticides and more pesticide residues.

As shown in Table 4, Meisheng Fruit and Vegetable Cleaner (T5) had the best washing effect on the residues of tomatoes, followed by Mr. Weimeng Detergent (T6), White Cat Fruit and Vegetable Detergent (T7), and Rice Cleaning Water (T8). When chlorpyrifos was sprayed on tomatoes, the pesticide residues decreased from 2.45 mg/kg to 0.20 on the 1st to 9th day after the application of chlorpyrifos. Mg/kg, 11 days after treatment, the residue decreased to 0.01-0.04 mg/kg, after treatment. 13 days, chlorpyrifos was not detected. 3 conclusion and discussion

Under high temperature and rainy conditions, the decomposition rate of chlorpyrifos is relatively fast. The half-life of chlorpyrifos is 1.4 days in summer and 7.88 days in winter. The dynamics of chlorpyrifos residues are closely related to crop species and initial residues. Eggplant, tomato and green pepper all belong to the crops that grow slowly and keep trees for a long time, but because of the large eggplant cotyledon leaves, the amount of medicines absorbed by eggplant fruit is less, and the initial residues are less, the degradation rate is faster; while tomato and green pepper have more residues in the initial stage and stay trees for a longer time, so the degradation rate is slower.

Because the eggplant fruit absorbed less chlorpyrifos and the pesticide residues were lower, the effect of water temperature on washing effect was not obvious, but with the increase of water temperature, the pesticide residues still showed a certain downward trend. This aspect needs to be further discussed in the future. The effect of special detergent and rice washing water on washing effect can be concluded through this test: Meisheng Fruit and Vegetable Cleaning > Mr. Weimeng Detergent > White Cat Fruit and Vegetable Cleaning Agent > Rice washing water. This result is limited to the detergent used in this test.

This experiment is only a preliminary attempt to study the effects of different washing methods on pesticide residues in fruits and vegetables. Further experiments will be carried out in the future. In addition to eggplants and fruits, more studies will be done on leafy vegetables [5-8].