

## **Effects of three Organic materials on cadmium adsorption capacity and soil available cadmium contents**

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### **Abstract :**

There was an increasing concern about vegetable safety and heavy metal contaminated soil in China. The research was aimed to study economic and effective technology in repairing the farmland soil damaged by heavy metal contamination. Cadmium (Cd) adsorption capacity in three typical agricultural soil wastes in Yunnan Province of China namely tobacco waste (TW), bagasse sludge (BS) and rapeseed cake (RC) were studied using an isothermal adsorption method. A soil culture experiment and a biological test were carried out to investigate the adsorptive effects of three organic materials on Cd contaminated soil, cabbage biomass and Cd uptake by cabbage. The adsorption capacity of the three organic materials was ranked in order: BS>RC>TW. Compared with the control, TW, BS and RC significantly reduced Cd contents (0.6mg/kg and 1.0mg/kg) in soil. BS and RC application increased the cabbage biomass significantly, and decreased the Cd concentration significantly in cabbage. Under the application of TW, cabbage biomass was decreased. Thus applying BS and RC can decrease Cd content in soil and hence the Cd toxicity. The effect of BS on reducing soil Cd contamination was the most effective among the three organic materials.

**Keywords:** Cadmium; bagasse sludge; rapeseed cake; adsorption capacity; cabbage