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标题: Qualitative and Quantitative Detections of Pyrethroid Pesticides by Terahertz Time-Domain Spectroscopy
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摘要: Pyrethroids pesticides are broad-spectrum insecticides which were used to control variety of pests, and were mainly used to hygienic insecticides and agricultural pest control. The room-temperature terahertz spectra of b-cypermethrin, 1-cyhalothrin and deltamethrin were investigated by terahertz time-domain spectroscopy (THz-TDS) technology. The three pyrethroids pesticides were easily discriminated according to the absorption spectra within 0. 2-2. 2 THz. We employed SLR and PLS method to perform the quantitative analysis of the mixture of deltamethrin in polyethylene. The PLS method provides better result than SLR method. The detection limit of deltamethrin content in the mixture can be down to 2. 0%, and the maximum value of absolute error was 0. 8%. The root mean square 'error was 0. 55%. This result proved that the THz-TDS technique is quite potential for pesticide molecular discrimination and content determination.
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