Evaluation of coated urea for the effects of coating on the physical and chemical properties of urea fertilizer

ABSTRACT

The experiment was conducted to evaluate the effects of biodegradable material and micronutrient coatings on the physical and chemical character of urea fertilizer. Six treatments were prepared by coating urea with agar, gelatine, palm stearin, CuSO4 and Zn SO4. Both micronutrients were used as urease inhibitor and all other materials were used as adhesive agents to keep micronutrient and nitrogen together on microsite. The treatments were labelled as, U (urea), UPSCu, UAGCu, UGCu, UCu and UCuZn. Each coated urea treatment was evaluated for coating thickness, thermal behaviour and chemical structure by using scanning electron microscopy, thermo-gravimeter and Fourier transform infrared (FTIR) techniques, respectively. The results of this study did not show significant differences among physical and chemical properties of urea treatments and accepted palm stearin and Cu coated urea which had been a modification in structural group. The study proved that addition of Cu and Zn with biodegradable material did not have adverse or severe effects on urea fertilizer properties.

Keyword: Fourier transform infrared (FTIR); Micronutrient; Urea