

SAFETY ASSESSMENT OF CHOYSUM MANURED BY TRACE ELEMENTS NANO-FERTILIZER ON ANIMAL MODEL

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Summary

Nowadays, applications of nanotechnology have been utilized widely in diverse fields of human life, particularly in agriculture. There are hundreds of new nano products from fertilizer, pesticides and animal feed which are applied in reality annually. Therefore, it is essential to assess the safety of these new products for plants, livestock and human health. In this study, trace elements nanofertilizer manufactured domestically was investigated its safety for animal through a common choysum known as *Brassica integrifolia*. Choysum is cultivated and treated with nanofertilizer containing trace elements at two concentrations (recommended and high concentrations). Afterward, choysums were harvested and supplemented to rabbit's diet at the rate of 0.3 kg per head per day. After 6 weeks of feeding, the rabbits were operated and evaluated for criteria of survival ratio, weight changes, liver damage and renal function. The results showed that rabbits which were fed by choysums fertilized with recommended concentration (1 mg/L/50 m²) of trace elements nanofertilizer gained weight faster than those with high concentration (nearly inhibited the growth of choysums, 20 mg/L/50 m²) ($p < 0.001$) and control sample ($p < 0.05$). Meanwhile, rabbit's serum ALT, serum AST and serum creatinine concentrations as well as liver weight were not significantly different among treatments ($p > 0.05$). In addition, visual assessments of the surface of livers, renal glomerular tissues and other organs performed normally. They indicated that the choysum manured by trace elements nanofertilizer at the optimum or even high concentration did not influence animal body negatively.

Keywords: *Nanofertilizer, trace elements, choysum, safety, animal model.*