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Comparative study on acute toxicity of aluminium oxide nanoparticle and aluminium chloride anhydrous in rat

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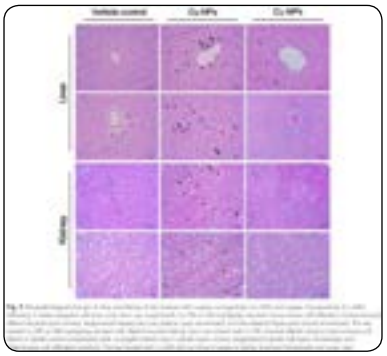
In order to compare the toxicity between aluminium oxide nanoparticle and aluminium chloride anhydrous, test articles were administered by oral gavage to 6-week-old Crl:CD (SD) rats of both sexes. Those were separated into 7 groups (n=10 for each group) and each test article was given three dose of 800, 2000, 5000 mg/kg body weight or vehicle solution. Aluminium oxide nanoparticle were dispersed into the 1% hydroxylpropyl methylcellulose (HPMC) solution. During the study, clinical signs, mortality, body weight, hematology, serum biochemistry, gross findings, and organ weights were measured. In aluminium chloride anhydrous group, six and four animals were dead at day 1 and day 2 in high-dose group (5000 mg/kg). In the middle-dose group (2000 mg/kg), five, three and two dead animals were found at day 2, day 3 and day 3, respectively. In contrast, no treatment-related clinical signs observed in aluminium oxide nanoparticle group and no significant changes of body weight, organ weight were noted in all treated animals. In hematology and serum biochemistry, PLT, CREA were increased in male 800 mg/kg and higher GLU was seen at female 800 mg/kg dose group of aluminium chloride anhydrous group. In the aluminium oxide nanoparticle, increased ALB was noted at female 800 mg/kg and Glu was increased at 5000 mg/kg. In conclusion, aluminium chloride anhydrous has higher toxicity than aluminium oxide nanoparticle in rat.



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3. Y Heo et al. (2015) Evaluation of phototoxic and skin sensitization potentials of PLA2-free bee venom. Evidence-based Complementary and Alternative Medicine. 2015:157367.

Biography

Je Hein Kim has completed his Master´s Degree from Gyeongsang National University, Republic of South Korea. He is a Researcher at the Korea Institute of Toxicology, a world-class prestigious contract research organization and has experience in toxicology. His research interest include: Food Toxicology and Genetic Toxicology.

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