

عنوان مقاله:

(Toxicity comparison of silver nanoparticles synthesized by physical and chemical methods to tadpole (Rana ridibunda

محل انتشار:

مجله علوم زیستی خاورمیانه, دوره 13, شماره 4 (سال: 1394)

تعداد صفحات اصل مقاله: 8

نویسندگان:

S.A. Johari - University of Kurdistan

I. Sourinejad - University of Hormozgan

S. Asghari - University of Kurdistan

N. Bärtsch - Particular GmbH Langenhagen Germany

خلاصه مقاله:

One of the possible threats in increasing use of nanomaterials is the emergence of toxicity in humans and other animals which is discussed in nanotoxicology. In addition to toxic effects of nanomaterials themselves, different chemical precursors which are usually used in bottom-up approaches for production of nanomaterials may have secondary toxic effects in living organisms. In contrast, less use of chemicals in top-down approaches may reduce these secondary effects. To test this hypothesis, toxic effects of two types of silver nanoparticles (AgNPs) produced by physical (top-down) and chemical (bottom-up) methods were investigated and compared on the tadpole, Rana ridibunda survival. The estimated 48 h LC50 values of AgNPs produced by chemical and physical methods for tadpoles were  $0.055 \pm 0.004$  and  $0.296 \pm 0.085$  mg.L<sup>-1</sup>, respectively. No observed effect concentration, lowest observed effect concentration, maximum acceptable toxicant concentration and median lethal concentration of AgNPs produced by chemical method were respectively 3.42, 4.50, 4.84 and 5.38 times less than those produced by physical method. Therefore, approving the mentioned hypothesis, it was revealed that AgNPs produced by chemical method are more toxic than those generated by physical method. However, it seems totally that AgNPs regardless of the method used for their production, have toxic effects on aquatic organisms and so, inhibiting their accidental or intentional entrance into the aquatic ecosystems should be more considered.

کلمات کلیدی:

Amphibian, Aquatic Nanotoxicology, Rana ridibunda, Silver Nanoparticles, Tadpole

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1996385>

