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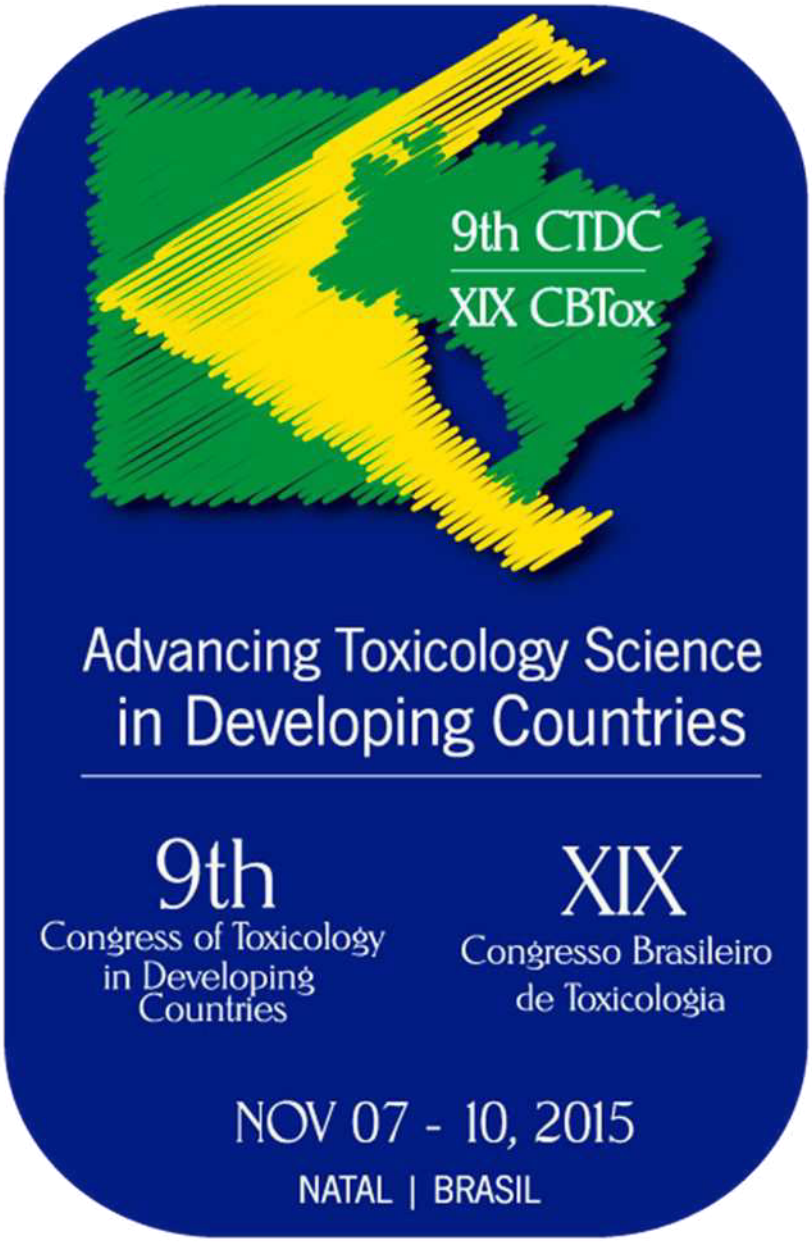

ABSTRACTS

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NT 07- PRELIMINARY TOXICOLOGICAL ASSESSMENT OF THE COPOLYMER CHONDROITIN SULFATE-CO-N-ISOPROPYLACRYLAMIDE AS DRUGS CARRIER

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Introduction: A variety of polymers and/or copolymers have been evaluated by the pharmaceutical industry for drugs encapsulation, especially the ones which associate synthetic and natural polymers, due to their high stability, flexibility for chemical modification and specific biodegradability and because they promote controlled and precise release of the drug, reducing its toxicity and the administered dose. The chondroitin sulfate-co-N-isopropylacrylamide (CSM + NIPAAm) is a copolymer proposed for this purpose, from a synthetic polymer reaction, Poly N-isopropylacrylamide with thermosensitive characteristics with a natural Chondroitin Sulfate (CS), with bioadhesive characteristics. Thus, the copolymerization may be able to add these properties and to improve its use as a vehicle for controlled-release. **Objectives**: The aim of this work was to assess the toxicity of the copolymer CSM + NIPAAm 5% through both brine shrimp (*Artemia salina*) bioassay and cytotoxicity assay using PC-12 cells. **Material and Methods**: The copolymer CSM + NIPAAm 5% (provided by the EMBRAPA Amazônia Oriental, Belém – PA) was prepared in vials at different concentrations (1,000; 750; 500; 250;100 and 50 µg/mL) for the brine shrimp lethality bioassay. Survival trials (24 and 48 h) was assessed by scoring the number of dead nauplii (LC_{50} - probit analysis). Cell viability assay (cytotoxicity), by the metiltetrazolium (MTT) method, was carried out on PC-12 cells in 96-well plates ($2.0x10^4$ cells/well) incubated at different concentrations (2,000; 1,000; 500; 250 and 100 µg/mL) with the copolymer during 24 and 48 h. Data were expressed as mean □ standard deviation of mean. ANOVA and Bonferonni *pos-hoc* test were used for statistical analysis. **Results and Discussion**: The results showed which the copolymer CSM + NIPAAm 5% was unable to cause death of the *A. saline* nauplii (both 24 and 48 h) up to tested concentrations. For the cytotoxicity assay, there was no statistically significant difference between the control and the all tested concentrations, corroborating with the results obtained from the brine shrimp lethality bioassay. **Conclusion**: The copolymer CSM + NIPAAm 5% was shown to be nontoxic on the models and evaluated concentrations.

NT 08- EVALUATION OF GRAPHENE OXIDE TOXICITY BY FET TEST IN THE PRESENCE OF HUMIC ACID

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Introduction: Sustainable development of nanotechnology requires the deep evaluation of the safety of its products. Despite nanotoxicological studies have been intensified in recent years, gaps remain in the methods used to assess the nanotechnology risks. These gaps are due to the complex nanomaterials behavior in the environment, especially in the presence of organic matter and depending on the nanomaterial characteristics. Studies indicate that humic acid present in the aquatic environment can increase the stability of nanomaterial dispersions and may change its toxicity to aquatic organisms. **Objective:** The aim of this study is to evaluate the influence of humic acid in the toxicity of graphene oxide (GO) utilizing Fish Embryo Toxicity Test (FET test). **Materials and Methods:** Zebrafish embryos (*Danio rerio*) were exposed during 96 h to GO (100, 10 or 1 $mg.L^{-1}$, Sigma Aldrich) with or without humic acid (HA, 20 $mg.L^{-1}$, Sigma Aldrich). Control groups exposed to water and HA were performed. At the end of the exposure period the larvae were measured and frozen at -20°C for subsequent evaluation of biochemical biomarker of oxidative stress (catalase and glutathione S-transferase activity). The stability of suspensions was evaluated through spectrophotometry and dynamic light scattering. **Results and Discussion:** GO agglomerated and precipitated quickly in reconstituted water. The presence of HA in the medium stabilized the GO suspension similarly to that ocurred with GO in ultrapure water. There was no difference between groups related to the occurrence of embryo malformation, mortality or total length of the larvae. The parameters of sublethal effects will be further analyzed. **Conclusion:** GO did not show acute toxicity to zebrafish embryo and the presence of HA did not change acute GO effects. Nevertheless, sublethal effects must be evaluated to ensure GO safety.

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