

ISBN 978-85-63274-02-4

A large, stylized graphic of a green leaf, composed of several overlapping, semi-transparent layers of varying shades of green. The leaf is oriented vertically, with its tip pointing upwards and its base pointing downwards. It is positioned behind the main title and editor information.

# **International Conference on Food and Agriculture Applications of Nanotechnologies**

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São Pedro, SP  
2010

1st Edition  
1st print: 500 copies

Anais da 1. International Conference of Food and  
Agriculture Applications of Nanotechnologies –  
São Pedro: Apor Software, 2010.  
284 p.

ISBN 978-85-63273-02-4

1. Nanotechnologies – Events. 2. Ribeiro, Caue. 3.  
Assis, Odílio Benedito Garrido de. 4. Mattoso, Luiz  
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### Assessment of the citotoxicity and acute oral toxicity of a new spherical chitosan-polymethacrylic acid (CS–PMAA) nanoparticle.

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**Abstract** - New polymeric nanocomposites have created arguable doubts about their toxicity. This study evaluated the toxicity of new spherical CS–PMAA nanoparticles [1]. The material was tested in mouse fibroblast 3t3 cell assay and its acute oral toxicity was performed by the administration of a single dose equivalent to 2000 mg/kg of material in 5 mice, using OECD Limit Test [2]. No toxicity signs were detected neither in cells nor in gross necropsy and histopathology of the animals. These tests indicate that the CS–PMAA nanoparticles are safe for oral acute ingestion.

New polymeric nanocomposites have created arguable doubts about their toxicity. This study evaluated the toxicity of new spherical CS–PMAA (chitosan-polymethacrylic acid) nanoparticles [1], which can be very important for several applications, such as controlled release of drugs.

The material was tested in mouse fibroblast 3t3 cell assay and its acute oral toxicity was tested in mice. No signs of citotoxicity were detected, so the OECD Limit Test [2], which can be done with as few as 5 animals, was found to be an appropriate procedure to verify the acute oral toxicity. All the animals of the study were females, since they are generally more sensitive to toxicity than males. A sighting study starting dose of 2000 mg/kg was administered by gavage in 1 animal, which was then observed during 14 days for external signs of toxicity in their fur, eyes, behavior, etc. On day 15, the animals were sacrificed for gross necropsy and histopathology of the organs. No toxicity signs were detected in the sighting study so 4 more mice received the same dose, following the same methodology. Again, the animals were all found normal.

The tests indicate that the CS–PMAA nanoparticles are safe for acute oral administration. Further studies are necessary to verify the effect of subchronic doses in rodents.

**Acknowledgments** - We thank CNPq (National Council for Scientific and Technological Development), FAPESP (São Paulo Research Foundation) and MCT (Ministry of Science and Technology) in Brazil for the financial support.

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[2] Organisation for economic co-operation and development (OECD). *Acute Oral Toxicity – Fixed Dose Procedure*. OECD guideline for testing of chemicals, nº 420. Adopted: 17<sup>th</sup> December 2001.