

CYTOLOGICAL PROPERTIES OF NANO CHITOSAN

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ABSTRACT

SUNICO, ETHYL JOY A. Department of Biological Sciences, College of Arts and Sciences, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **JUNE 2019. CYTOLOGICAL PROPERTIES OF NANO CHITOSAN.**

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Nano chitosan has been tested in three bioassays (teratogenicity, cytotoxicity, and genotoxicity assay using zebrafish embryos, brine shrimp nauplii, and onion as model organism, respectively) to further research its (Nano chitosan) other probable applications. The utilized Nano chitosan was synthesized through performing Ionotropic Gelation Method, and was characterized using FTIR (Fourier Transform Infra-Red) analysis and Horiba Particle Analyzer.

The appearance of some new peaks due to P=O stretching (1065.60 cm^{-1}) and P-O stretching (889.83 cm^{-1}) proves the formation of chitosan nanoparticles upon the addition of sodium tripolyphosphate. While, Horiba Particle Analyzer revealed that the particle size of synthesized Nano chitosan was 639 nm. Nano chitosan discovered that it does not exhibit teratogenicity against the zebrafish embryos. Meanwhile, the estimated LC50 of Nano chitosan was found to be 2641.827 ppm, which indicates that Nano chitosan does not exhibit toxicity against brine shrimp nauplii, either. Also, assessing genotoxic effect of Nano chitosan using *Allium cepa* test was found out to be not suitable.

The findings and observations of this study imply that modifying chitosan chemically did not change the nontoxic nature of it. Denoting that it can be use it wide

range of biomedical applications, such as drug delivery, tissue engineering, cancer diagnosis, and the likes.

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