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Type: Presentation

Title:

Examining the Effects of the homeopathic supplement, Nux Vomica, on metabolism in
Tetrahymena thermophila

Abstract:

The seeds of the Strychnos Nux-Vomica tree have been used in traditional Chinese medicine for centuries and its use has carried over to modern homeopathic medicine. Its prevalence stems from claims of it being a cure-all supplement for everything from liver cancer to hangover relief. Nux vomica's supposed medical benefits are thought to arise from the alkaloids, strychnine and brucine, found within the plant; however, there is little scientific evidence to support these claims. The goal of this research was to determine whether Nux Vomica would affect metabolism in the model organism, *Tetrahymena thermophila*. It was hypothesized that Nux Vomica would alter expression of the *CDK3* and *CAM1* genes due to its proposed anti-tumor properties while also affecting cell replication, metabolic rate, and responsiveness to chemical stimulation. The *CDK3* gene encodes a protein involved in cell cycle regulation while *CAM1* encodes a regulator of cytokinesis that is expressed during cell division. To test this hypothesis, *T. thermophila* were treated with Nux Vomica for 48 hours before expression of *CAM1* and *CDK3* was measured via Real-Time quantitative Polymerase Chain Reaction (RT-qPCR). The *T. thermophila* cultures were also subjected to behavioral assays at the end of the treatment period, including cell counting to monitor growth, deciliation to determine metabolic rate, and chemotaxis to analyze chemical responsiveness. There was no significant results found in the study of Nux Vomica's effects on *T. thermophila* showing a lack of responsiveness under the conditions tested.