

## Accepted Manuscript

Zinc oxide phytase nanocomposites as contributory tools to improved thermostability and shelflife

Sharrel Rebello, A.N. Anoopkumar, Sreedev Puthur, Raveendran Sindhu, Parameswaran Binod, Ashok Pandey, Embalil Mathachan Aneesh



PII: S2589-014X(18)30040-9  
DOI: doi:[10.1016/j.biteb.2018.05.007](https://doi.org/10.1016/j.biteb.2018.05.007)  
Reference: BITEB 39

To appear in:

Received date: 6 March 2018  
Revised date: 11 May 2018  
Accepted date: 22 May 2018

Please cite this article as: Sharrel Rebello, A.N. Anoopkumar, Sreedev Puthur, Raveendran Sindhu, Parameswaran Binod, Ashok Pandey, Embalil Mathachan Aneesh , Zinc oxide phytase nanocomposites as contributory tools to improved thermostability and shelflife. (2017), doi:[10.1016/j.biteb.2018.05.007](https://doi.org/10.1016/j.biteb.2018.05.007)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Zinc oxide phytase nanocomposites as contributory tools  
to improved thermostability and shelflife**

Sharrel Rebello<sup>a</sup>, A. N Anoopkumar<sup>b</sup>, Sreedev Puthur<sup>a</sup>, Raveendran Sindhu<sup>c</sup>,

Parameswaran Binod<sup>c</sup>, Ashok Pandey<sup>d</sup> and Embalil Mathachan Aneesh<sup>a\*</sup>

<sup>a</sup>Communicable Disease Research Laboratory, St Joseph's College, Irinjalakuda, Kerala, India.

<sup>b</sup>Department of Zoology, Christ College, Irinjalakuda, University of Calicut, Kerala, India.

<sup>c</sup>Microbial Processes and Technology Division, CSIR-National Institute of Interdisciplinary Science and Technology (CSIR-NIIST), Trivandrum – 695 019, India

<sup>d</sup>CSIR- Indian Institute of Toxicology Research (CSIR-IITR), 31 MG Marg, Lucknow- 226 001, India

\*aneeshembalil@gmail.com

**Abstract**

The current study suggests the utility of ZnO nanoparticles to increase the thermotolerance of phytase enzymes; thereby aiding their effective utilization to provide better phosphate uptake when applied in animal feeds. Microbial isolates with predominant phytase activity were isolated from industrial wastewater to obtain a promising thermotolerant isolate of *Penicillium decumbens*. The purified phytase showed activities at mash preparatory temperature ( $32.59 \pm 0.045 \text{ Uml}^{-1}\text{min}^{-1}$  at  $55^\circ\text{C}$ ), animal feed pelletizing temperature ( $37.83 \pm 0.127 \text{ Uml}^{-1}\text{min}^{-1}$  at  $80^\circ\text{C}$ ) and steam sterilization temperature ( $18.56 \pm 0.027 \text{ Uml}^{-1}\text{min}^{-1}$  at  $100^\circ\text{C}$ ) of animal feeds as per standard phytase assays. The supplementation of ZnO

Download English Version:

<https://daneshyari.com/en/article/6482521>

Download Persian Version:

<https://daneshyari.com/article/6482521>

[Daneshyari.com](https://daneshyari.com)