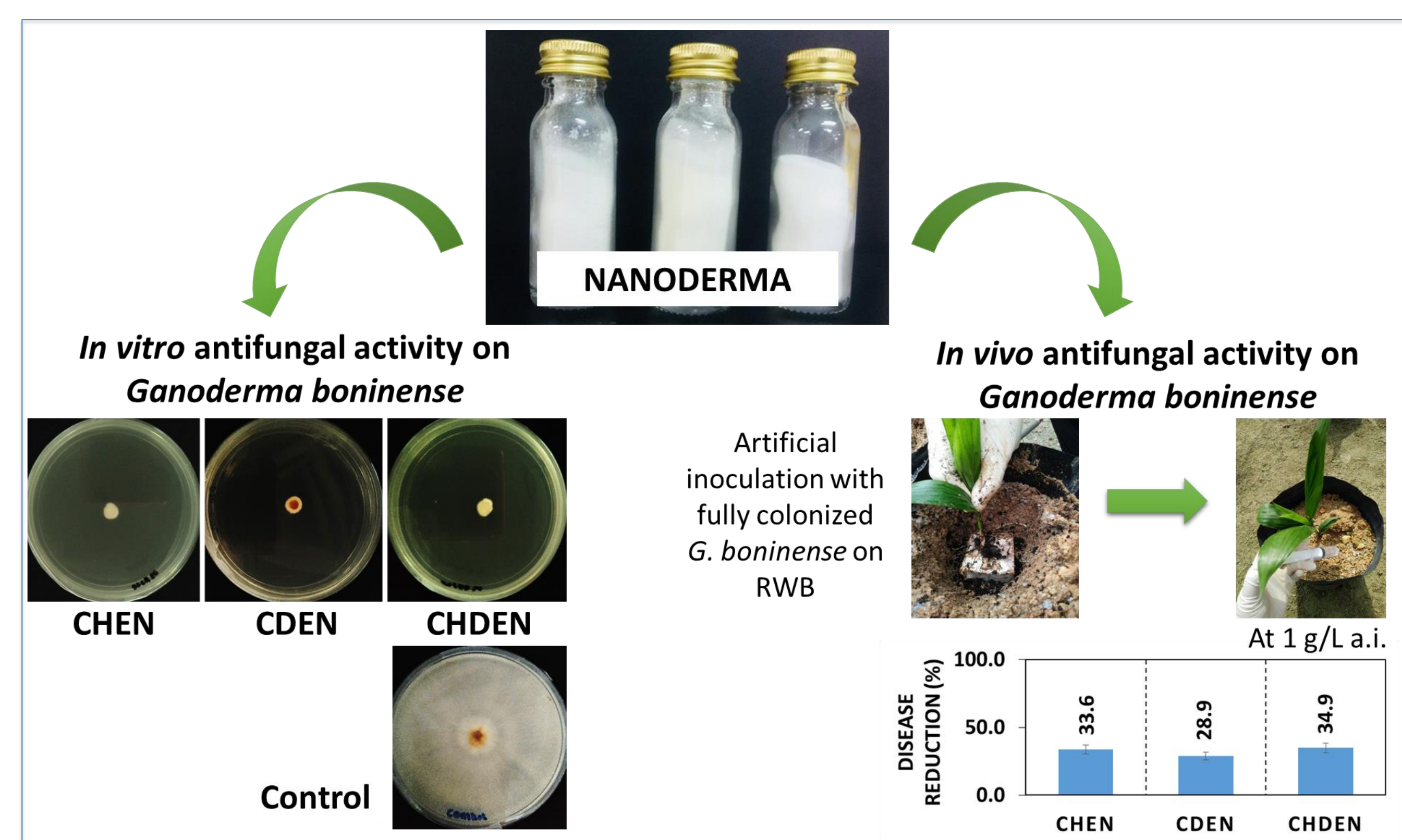
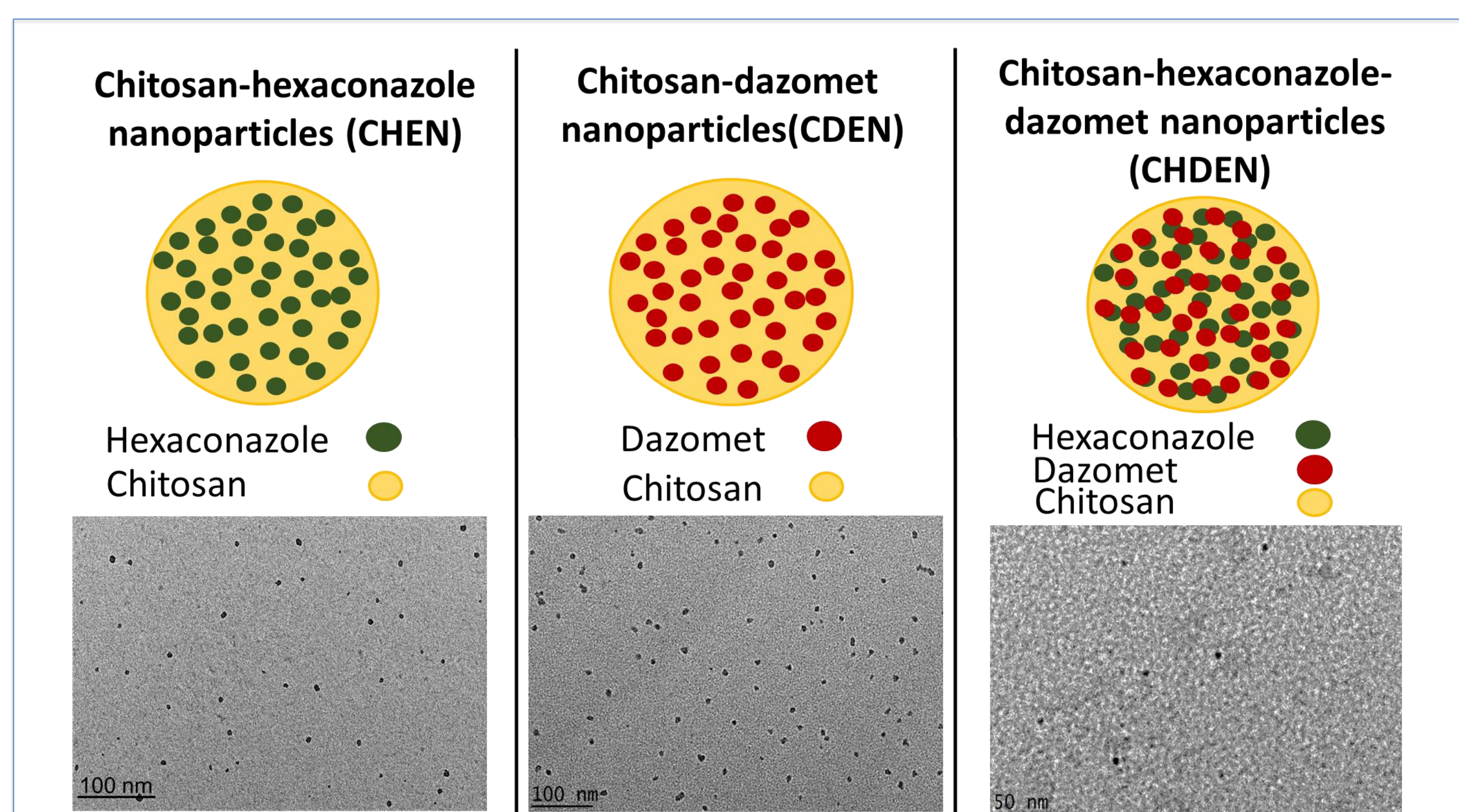


NANODERMA: Potent Antifungal Nanodelivery System for *Ganoderma* Disease Treatment of Oil Palm

PI 2018703220

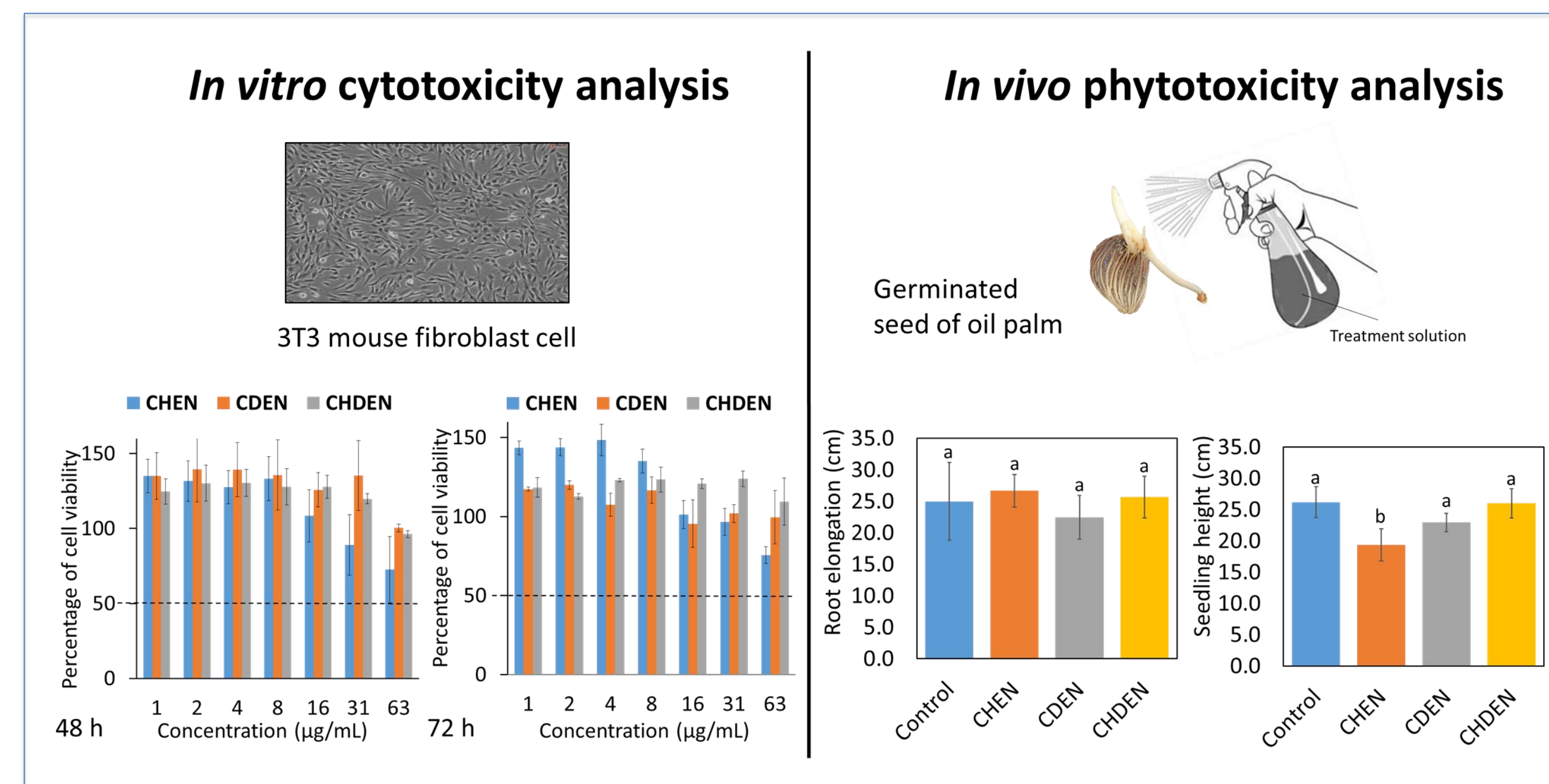


INTRODUCTION OF TECHNOLOGY

Oil palm is one of the largest crop and economical tree in Malaysia. Unfortunately, basal stem rot (BSR) disease due to *Ganoderma boninense* (*G. boninense*) resulted in huge loss in oil palm upstream activity. *G. boninense* can only be detected when the oil palm is internally infected by about 50%, thus making it impossible for early control and treatment. In addition, the fungus releases its spore and then formed on the exterior of the trunk which cause the disease to be easily spread on the soil or nearby trees. As a result, *Ganoderma* has yielded a significant loss to the oil palm industry. The estimated yield loss due to *Ganoderma* disease can reach up to RM 1.5 billion.

INVENTION

The aim of the invention is to develop a green novel fungicide nanodelivery formulation with slow release capability, low toxicity and high antifungal activity towards *G. boninense* using the nanotechnology platform. This enabled the fungicide active agents (hexaconazole and/or dazomet) to be encapsulated into the chitosan matrix, that allows them to be delivered and released more effectively to the target, *G. boninense*. This invention helps the oil palm industry and farmers to control and cure the *Ganoderma* disease in oil palm tree more effectively. To the best of our knowledge, no such product is available in the open market.



ADVANTAGES

The use of NANODERMA in combating *Ganoderma* disease in oil palm cultivation has many advantages such as

- Low toxicity
- Long circulation time
- High efficacy
- Reduced labor cost
- Reduced leaching and volatilization
- Consumer-friendly
- Environmental-friendly
- Green innovation

MARKET POTENTIAL

Consumer/End User

- Farmers/ oil palm estate

Industry

- Agricultural industry
- Oil palm market and industry



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