

# Zinc doped magnetic prepared nanoparticles its assessment

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### Abstract

Nanoparticle metal oxides represent a new class of important materials that developed use in researches of medical, biotechnology and microbial prevention. This study clearly demonstrated that Zinc nanoparticles have a wide range of antimicrobial effects. The antibacterial activity of Zinc may be dependent on its size. The data suggest that ZnO<sub>2</sub> and ZnN<sub>2</sub> nanoparticles were inhibited growth and damage of bacterial cells. The aim of this study was to evaluate antimicrobial activity properties of Zinc doped magnetic prepared in O<sub>2</sub> and N<sub>2</sub> against Escherichia coli K88 bacteria. Results of this study revealed that ZnO nanoparticles caused inhibition zone diameter before heating by 25, 24, 23, and 22 mm. at nanoparticles concentrations of Zn 0.25% doped in O<sub>2</sub>, Zn 0.2% in O2, Zn 0.15% in O2, and Zn 0.3% doped in O2 respectively. While ZnN, nanoparticles produced diameter inhibition of E. coli by 20, 17, 16 and 15 mm. at nanoparticle concentrations of Zn 0.25% in N<sub>2</sub>, Zn 0.15% in N<sub>2</sub>, Zn in N<sub>2</sub>, and Zn 0.1% & 0.3% respectively. Data showed that Zn doped in O, and N, nanoparticles were decreased and prevented growth of E. coli colonies. The most effective prevention was 37% by the effect of Zn 0.2% doped in O<sub>2</sub>.zone of inhibition diameter increases as the density of the nanoparticles increased. After heating the highest inhibition of zone diameter was 27mm. at nanoparticle concentration of Zn 0.25% doped in O<sub>2</sub>. Also the nanoparticles of Zn 0.2% doped in O<sub>2</sub> most produced prevention of E. coli growth colony by 37%. Meanwhile these results concluded there is no clear significant different P > 0.5 by the effect of ZnO<sub>2</sub> and ZnN<sub>2</sub> before or after heating. It can be concluded that the results from the premises

for future studies on high quality and nanoparticles materials that could be used eventually in various biomedical and microbial prevention applications.



### Biography

Mamdouh Ibrahim Nassar was born Cairo. He graduated a bachelor's degree from Biology (Zoology, Botany, and Entomology) Department, Faculty of Science Cairo University. Receive his M.Sc. degree in from the same University. Ph.D. degree (Channel system) between University of Maryland College Park (USA) and Cairo University. He spent many studies for field of sleeping sickness and Malaria Vector diseases of Stomoxys calcitrans and Anopheles in USDA Florida, Jazan and Jeda. Mamdouh Nassar was worked at laboratory staff, for dietary Microbiology at Environmental system service, Beltsville, USA. He appointed acting Dean Faculty of Science, Cairo University and appointed Vice Dean of postgraduate studies & Researches from 2013 to 2017. He also was consultant advisor at home care Company and Al-Nasr chemicals Company. Nassar is an energetic, motivating and consultant specializing in Bee venom, Biological science, corporate training programs and motivational learning techniques and binformatics. He was promoted to associate professor and full professor and appointed acting director of community affairs and Environment service, at Abha and Jazan City, Saudi Arabia.

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