

نبذة عن الباحث:

الباحث: د. هبة الحامد الضويحي، حاصلة على درجة الدكتوراه في الأحياء الدقيقة من جامعة حلب.

حاصلة على ماجستير الأحياء الدقيقة من جامعة حلب.

إجازة في علم الحياة من جامعة دمشق

العمل حالياً: مدرس في كلية الصيدلة في جامعة حماة و نائب عميد كلية الصيدلة للشؤون الإدارية وشؤون الطلاب.



الأبحاث المنشورة بعد التعيين

Preparation of nano hydroxyapatite loaded with syrian -1 inula extract against dental caries

ملخص البحث:

Dental caries and oral infections result from various causes, and the germs responsible for these diseases show an increase in resistance towards the standard antibiotics used in treatment due to the inappropriate and indiscriminate use of these antibiotics. Research has directed towards making use of natural products to treat these infections. In this paper, a study was conducted to prepare nanoparticles of hydroxyapatite based on pure chemical materials. The prepared particles were characterized using XRD, FTIR, and AFM techniques, tests confirmed the formation of hydroxyapatite nanoparticles 80 nm. Active compounds were extracted from the Syrian Inula plant using an ethanol solvent. The active compounds present in the extract were identified using gas chromatography technology. Equipped with a GC-MASS mass spectrometer. The plant extract was loaded onto the prepared hydroxyapatite particles. The main bacterial species causing dental caries were obtained from Aleppo University laboratories. The sensitivity of the tested germs to a group of standard antibiotics and the prepared hydroxyapatite nanoparticles modified with the plant extract were studied. The results proved the effectiveness of the prepared particles against the studied germs. It exceeded the effectiveness of all studied antibiotics.

تاريخ النشر:

18 August 2024

جهة النشر:

رابط البحث :

<https://www.sciencedirect.com/science/article/abs/pii/S0254058424010009>

Preparation of clove extract-loaded nano-hydroxyapatite for -2 combating dental caries-associated microbes

ملخص البحث:

The global rise in antibiotic resistance among oral pathogens necessitates exploring natural and innovative alternatives for dental caries management. This study aimed to synthesize, characterize, and evaluate a novel clove extract-loaded nano-hydroxyapatite composite (nHA-CE) for its dual functionality: biomimetic remineralization and enhanced antimicrobial activity against dental caries-associated microbes. Nano-hydroxyapatite (nHA) was synthesized via wet chemical precipitation and characterized using XRD, FTIR, AFM, and DLS. Clove extract was obtained by ethanolic extraction and analyzed by GC-MS. The nHA-CE composite was prepared, and its antibacterial efficacy was tested against oral pathogens using agar well diffusion and compared to standard antibiotics. The nHA particles were spherical, with an average size of ~ 80 nm. Eugenol (72.5%) was the major component in clove extract. The nHA-CE composite showed significantly larger inhibition zones against all pathogens, especially *Streptococcus mutans* (50 ± 0.8 mm), outperforming conventional antibiotics. The composite also exhibited sustained eugenol release and maintained stability over 30 days. The nHA-CE composite is a promising biomaterial for dental caries prevention, combining effective remineralization with potent, broad-spectrum antimicrobial activity, offering a natural alternative to conventional treatments.

تاريخ النشر:

23 January 2026

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رابط البحث :

<https://link.springer.com/article/10.1007/s44445-026-00121-7>

**Design and evaluation of triple-doped nano-hydroxyapatite -3
(Mg/Si/Zn-HAP) as multi-step intelligent scaffold for bone healing**

ملخص البحث:

Severe bone defects remain a significant clinical challenge due to the limitations of traditional biomaterials. The aim of this study is to design and synthesize a novel triple-doped nano-hydroxyapatite (Mg/Si/Zn-HAP) with a specific formula to act as a multi-stage intelligent scaffold, mimicking the complex time-dependent sequence of natural bone healing

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رابط البحث :

<https://www.sciencedirect.com/science/article/pii/S2773207X2600059X>

**Preparation of nano magnesium oxide loaded with Syrian Inula -4
plant extract and study of antibacterial activity against V. cholerae**

ملخص البحث:

Background: Nanotechnology is considered one of the most advanced technologies for treatment due to its ability to transport effective drugs and compounds and release them more efficiently. MgO nanoparticles have shown antimicrobial properties against both Gram-negative and Gram-positive bacteria in vitro, including Escherichia coli and Staphylococcus aureus. The V. cholerae bacteria were selected during the

period when the epidemic began to emerge in Syria, with several individuals showing symptoms of diarrhea in the city of Aleppo. Methods: In this research, nano magnesium oxide particles were prepared using the sol-gel method, and the active compounds were extracted from the Syrian Inula plant using ethanol as a solvent. The next step involved loading the plant extract onto the surface of the prepared magnesium oxide particles. The antibacterial activity of the new product was studied against the bacteria that cause cholera. Results: The effectiveness of the new product was compared with that of seven different antibiotics, and it outperformed all of them, noting that the studied isolate was resistant to three of the antibiotics. Conclusion: The combination of nanoparticles with the natural extract is more effective in fighting bacteria, as each works in different ways and has distinct effects. Therefore, the combination of these two technologies provides greater efficacy.

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Jordan Journal of Applied Science-Natural Science Series / Q3-Q4

رابط البحث:

<https://jjoas.asu.edu.jo/index.php/jjoas-n/article/view/1072>

Antibacterial Activity of Senna makki Plant against some -5 Pathogenic Bacteria Isolated from some Skin Lesions

ملخص البحث:

Skin infections caused by bacteria are widespread in many areas and cause various clinical symptoms and manifestations such as abscesses, boils, etc. The aim of the research was to study the effectiveness of the alcoholic extract of Senna makki leaves in inhibiting the growth of bacteria that cause skin infections (*Staphylococcus aureus* and *Pseudomonas aeruginosa*) after studying the sensitivity and resistance of these bacteria to antibiotics (Gentamicin, Vancomycin, Ciprofloxacin, Levofloxacin, Cotrimoxazole and Imipenem). The research was conducted in private laboratories in the city of Aleppo between March and June/2024 and

bacterial isolates were obtained from the Microbiology Research Laboratory at the Faculty of Science at the University of Aleppo. The results of the study showed that the effectiveness of the alcoholic extract of Senna makki leaves was superior to the effectiveness of many of the studied antibiotics.

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