PROFESSIONAL DETAILS

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Gender male

Birth Date 1984-08-15

Address Iraq - Ake

Nationality Iraqi

- College of Health and Medical Technology
- Medical Laboratory Technology

LANGUAGE

- **Kurdish** (Native)
- **Arabic** (Proficient)
- **English** (Intermediate)

SPECIALTIES

Master in analytical chemistry University of Mosul College of Science Department of chemistry 2015. Higher Diploma in Drug analysis University of Mosul College of Science Department of chemistry

2010. Bachelor in general chemistry University of Mosul College of Science Department of chemistry 2007.

TEACHING MATERIAL

General chemistry Analytical chemistry Organic chemistry Biochemistry

SOCIAL LINKS

Linkedin Google scholar Facebook

EDUCATION

Aug, 2015

Master

chemistry

university of mosul

May, 2010

Higher diploma

chemistry

university of mosul

Jul, 2007

Bachelor

chemistry

university of mosul

TITLE

May, 2017

Assistant Lecturer

INTEREST

Chemistry:

In general, I am interested in nanotechnology, especially synthesis of nanomaterials and its applications in water purification and detection of trace pollutants in drinking water.

PUBLICATION JOURNAL

Jun, 2022

Novel natural exudate as a stabilizing agent for fabrication of copper nanoparticles as a colourimetric sensor to detect trace pollutant

surfaces and interfaces (Volume: 32)

Detection of trace pollutants in water has become one of the most interesting issues due to its direct relation to human health. This work exploits a simple, novel, cost-effective, and environmentally friendly method to fabricate optical copper nanoparticles (Cu NPs) as an efficient colourimetric sensor using tree gum as a stabilising and capping agent. The localised surface plasmon resonance (LSPR) band of almond gum Cu NPs (ACuNPs) is monitored using ultraviolet-visible (UV-vis) spectroscopy. With an average size of 33 nm, the ACuNPs, which were uniformly spherical, are assessed using high resolution-transmission electron microscopy (HR-TEM). The formation of pure metallic-phase crystalline

ACuNPs is illustrated using x-ray diffractometry. The Cu nanostructure determines the thiocyanate (SCN?) ions in an aqueous medium as a colourimetric sensor. The ACuNPs demonstrated sensitive and selective colourimetric detection of SCN? ions based on the decrease in LSPR intensity, as monitored by a UV-vis spectrophotometer. The developed sensor is simple, rapid, and inexpensive compared to those based on precious noble metal nanoparticles and is sensitive to SCN? ions with a detection limit of 0.226 mg/l. This work presents the development of a highly effective and rapid sensor to detect SCN ions without complex apparatuses.

Apr, 2022

Sustainable engineering of plant-synthesized TiO2 nanocatalysts: Diagnosis, properties and their photocatalytic performance in removing of methylene blue dye from effluent. A review

Current Research in Green and Sustainable Chemistry (Volume: 5)

Water resources have been exposed to many kinds of pollutants in the last decades. These contaminants included inorganic and organic substances, such as heavy metals, plastics, herbicides, pesticides, antibiotics, and dyes. Because of the developing textile industry, pigments have been spread out over the environment extensively, especially in the aquatic system, which impacts the organisms' life. Further, it is considered as a longlife threat because of its resistancy to degradation by microorganisms. In this review many aspects have been illustrated related to synthesis, characterization, and mechanism degradation of Methylene blue dye of plant based titanium oxide nanoparticles and the variation of properties of synthesized nanoparticles using different parts of plant. The article also explains several techniques used for synthesis of titanium dioxide nanoparticles and their efficiency and drawbacks in details. Further, compare the conventional methods to the green based techniques and how the green approach is more advantageous and efficient. Besides, the spectroscopic and microscopic techniques used in characterization of green prepared titanium nanoparticles have been exhibited in details. Moreover, it viewed the proposed mechanism of photocatalytic degradation of organic pollutants in aqueous medium in assistance of visible and ultraviolet light to mineralize the organic pollutant to less toxic species. In this regard, an attempt was made to congregate the various reports on green synthesis of TiO2NPs using extract of various parts of the plant, their characterizations using different spectroscopic, microscopic techniques, and their efficient action in the removal of methylene blue (MB) dye from the effluent

May, 2021

Sustainable fabrication, optical properties and rapid performance of bio-engineered copper nanoparticles in removal of toxic methylene blue dye in an aqueous medium

Current Research in Green and Sustainable Chemistry (Issue: 4)

Copper nanoparticles have been obtained due to the green process in a one-pot reaction at ambient temperature using Malva Sylvesteris leaves extract. The plant extract has used as a reducing and capping agent, providing stability and avoiding

oxidation of synthesized copper nanoparticles for more than eight months. Many techniques have exploited for the investigation of optical and physicochemical properties of copper nanoparticles. UV-VIS spectroscopy showed two bands at different locations for the extract and nanoparticles at 340 and 390 nm, respectively. Fourier transform infrared spectroscopy confirmed the role of bioactive materials in the plant extract as a reducing and capping agent. X-ray diffraction tool affirmed the crystalline nature of fabricated copper nanoparticles at average (20 nm) and showed a centred cubic structure. Field emission scanning electron microscope (FESEM) chart illustrated the roughly spherical shape of distributed copper nanoparticles. The copper nanoparticles showed high-efficiency removal of methylene blue dye in water samples.

Feb, 2021

The Efficient Removal of Methylene Blue Dye Using CuO/PET Nanocomposite in Aqueous Solutions

catalysts (Issue: 11) (Volume: 241)

The present research investigates the application of the green method to produce nanocomposites. The CuO/PET fiber nanocomposite can be prepared in two ways. The first way involves the application of the electrospinning technique by which waste plastic cups of polyethylene terephthalate (PET) are converted into nanofibers. In the second way, the copper nanoparticle (CuONPs) is synthesized with the natural capped plant extract of sumac (Rhus Coriaria L., family Anacardiaceae) and the CuONPs are then combined as a filler with the PET nanofiber using a cross?linked solvent. The X?ray diffraction (XRD), transmission electron microscopy (TEM), field emission scanning electron microscopy (FESEM), energy dispersion spectroscopy (EDS), and map elements distribution can be applied to investigate the surface modification and alteration of the composite nanofiber morphology. The collected data show that the produced CuO/PET nanocomposites have a high surface area, well distribution of elements, magnificent shape, and stable dispersion state. Furthermore, the CuO/PET nanocomposites are considered as an efficient photocatalytic removal of the toxic methylene blue dye (MB) in aqueous solutions. The results of the present study demonstrate that the photocatalytic efficiency for removing MB dye is achieved in a short time using a low?intensity irradiation ultraviolet light

Dec, 2019

Diagnosis of the multiple effect of selenium nanoparticles decorated by Asteriscus graveolens components in inhibiting HepG2 cell proliferation

Sustainable chemistry and pharmacy (Issue: 100210) (Volume: 15)

Using plant bio-components for Designing green metal nanoparticles was considered as one of the most important methods in nanomedical application feld due to their eco-friendly, cheap source, easily obtainable and having a high detection result. In this report, we fabricated eco-friendly engineering and cost-effective technique for green selenium nanoparticles from 0.01 M H2SeO3 solution using Asteriscus graveolens leaves extract as reducing and a capping

agent at ambient temperature. Spectral techniques have been used to identify the formatted Selenium nanoparticles such as UV–Vis, pH, XPs, FT-IR, XRD, LDS, Z.P, EDS, TEM and AFM spectroscopy, which showed a size of 20 nm with spherical shape. Herein, the multi-effect of decorated Se-NPs surface have been evaluated, frstly on the hemolysis that showed completely hemocompatibility. Cytotoxicity assay showed that Se-NPs have a high selective effect on the HepG2 apoptosis and which proved by phasecontrast microscopy. Furthermore, the effect of nanoparticles on the action of the mechanism internal revealed that Se-NPs signifcantly and rapidly increased the level of reactive oxygen species and lipid peroxidation, while caused decreased the potential of mitochondrial membrane and glutathione level, which they together responsible on regulating the HepG2 cells fate. Furthermore, Flow cytometry analysis gave high values about S and G2/M phases of cell cycle resulting from Se-NPs effectiveness. In the end, with all the recorded information that has been measured in this study, this report provides a suitable and effective pathway for the green fabrication of Se-NPs decorated by biomolecules having high anticancer inhibited

Sep, 2019

Antibacterial Activity of Copper Nanoparticles Fabricate via Malva Sylvesteris Leaf Extract

Kurdistan journal of applied research (Issue: Special Issue: 3rd International Conference on Health & Medical Sciences: Insight into Advanced Medical Research (ICHMS 2019)) (Volume: 4)

A Green reduction of copper ions Cu2+ has been achieved by one-step process and at room temperature utilizing Malva sylvesteris. The extract of Malva Sylvesteris leaf has been identified using qualitative tests to detect the bioactive compounds such as flavonoids, polyphenols, terpenoids and carbohydrates. Characterization of copper nanoparticles was diagnosed by Ultraviolet–visible spectroscopy that confirms the band characteristic for copper nanoparticles in the range of 200–700 nm and the role of Malva Selvesteris leaf extract biomolecules was confirmed by Fourier transform infrared spectroscopy. The crystal shape of nanoparticles was confirmed by X-ray diffraction (XRD) at average (20.96 nm) and the peaks correspond to the face centered cubic structure of cooper metal. Effective antiseptic activity of copper nanoparticles determined by measurement of inhibition zone showed against representative microorganism of bacteria (Gram-positive: Clostridium Staph.aureus;) and (Gram-negative: Escherichia col; Pseudomonas; Klebsiella

Jul, 2019

Synthesis of copper nanoparticles as oxidising catalysts for multi-component reactions for synthesis of 1,3,4-thiadiazole derivatives at ambient temperature

Sustainable chemistry and pharmacy (Issue: 100155) (Volume: 13)

Multi-component reactions (MCRs) are some of the most significant processes of highly functionalised organic compound synthesis in modern synthetic chemistry. This is a strong artifice for the rapid preparation of diverse heterocyclic scaffolds.

This study involves two steps: first, fabricating copper nanoparticles as active catalysts using Trifolium resupinatum leaf extract as a reducing and capping agent and, second, utilising the active catalyst to synthesise 1,3,4-thiadiazole in a one-pot, three-component reaction via reacting with thiocarbohydrazide, acetophenone, and chalcone to produce 1,3,4-thiadiazole derivative compounds at an ambient temperature. Copper nanoparticles and T. resupinatum leaf extract have been characterised by ultraviolet–visible spectroscopy (UV-VIS), Fourier transform infrared (FTIR), X-ray diffraction (XRD), field emission scanning electron microscopy (FESEM), energy-dispersive X-ray spectroscopy (EDS), transmission electron microscopy (TEM) spectrum, and pH analysis. The synthesised thiadiazole compounds have been identified by physical and spectral methods. The melting point, FTIR, UV-VIS, and 1H, 13C NMR spectra were employed to verify the heterocyclic fivemembered fused ring structure.

Mar, 2018

Spectrophotometric Assay of Yttrium (III) with Alizarin Red S in the Presence of Cetyltrimethylammonium Bromide - Application to Water Samples

Rafidayn journal of science (Issue: 3) (Volume: 27)

A simple , accurate and sensitive procedure for spectrophotometric determination of yttrium (III) in aqueous solution has been developed. The method is based on the reaction of yttrium (III) with alizarine red s (ARS) reagent in the presence of cetyltrimethylammonium bromide (CTAB) and triton-X-100 surfactants at pH 4.7 to form a red carmine complex which has maximum absorption at 520 nm. Beer's law is obeyed over the concentration range 2.5-75 µg yttrium (III) /20 ml , (i.e. ,0.125-3.73 ppm) with with a determination coefficient of (0.9954) and molar absorptivity of 1.16×104 l.mol-1.cm-1. The limit of detection (LOD) and the limit of quantification (LOQ) are 0.1009 and 0.323 ?g.mL-1 , respectively . Under optimum conditions , the stoichiometry of the reaction between yttrium (III) , alizarine red S and CTAB is found to be 1:2:2 , respectively . The recoveries are obtained in the range of 98.07 - 100.63% and a relative standard deviation is better than ±2.33%. The method has been successfully applied to the determination of yttrium(III) in natural waters.

Nov, 2017

Extraction and Spectrophotometric Assay of Yttrium (III) with TOPO, Application to Water Samples and Alloys

Science Journal of Chemistry (Issue: 6) (Volume: 5)

An easy, accurate, selective and sensitive method for extraction and spectrophotometric determination of yttrium (III) in aqueous solution has been determined. The procedure is based on the extract of yttrium (III) with Trioctylphosphine oxide (TOPO) reagent from the aqueous medium followed reaction of extracted yttrium (III) in organic layer with alizarin red s (ARS) reagent at pH 4.9 to form a red carmine complex which has maximum absorption at 519 nm. Beer's law is obeyed over the concentration range 10-260 µg yttrium (III) /10 ml, (i. e., 1-26 ppm) with a determination coefficient of (0.991) and

molar absorptivity of 0.53×104 l.mol-1.cm-1. The recoveries are obtained in the range of 98.7 - 100.01% and a relative standard deviation is better than ±2.33%. The method has been successfully applied to the determination of yttrium (III) in natural waters and magnesium alloys

CONFERENCE

Jul, 2019 - Jul, 2019

3rd international conference for health and medical science in sulaimani university

Iraq, Faruq medical city-Sulaimani As Presenter

The main aim of the conference is to bring together all academics and researchers from all different areas of health sciences and to resolve and discuss the health sector problems by presenting the high quality research at the conference.

Aug, 2017 - Aug, 2017

international health and medical science

Iraq, Faruq medical city-Sulaimani As Guest

The main aim of the conference is to bring together all academics and researchers from all different areas of health sciences and to resolve and discuss the health sector problems by presenting the high quality research at the conference.

WORKSHOP

Apr, 2019 - Apr, 2019

Master

Salahaddin University- College of science- Erbil As Guest

The main goal of the workshop was sharing recent information about nanotechnology science and its application in the field of chemistry