



Document details - Synthesis, characterization and biological screening studies of mixed ligand complexes using flavonoids as precursors

1 of 1

[Export](#) [Download](#) [More...](#) >

Applied Organometallic Chemistry

Volume 32, Issue 2, February 2018, Article number e4030

Synthesis, characterization and biological screening studies of mixed ligand complexes using flavonoids as precursors(Article)

Porkodi, J., Raman, N.

Research Department of Chemistry, VHNSN College, Virudhunagar, 626 001, India

Abstract

Flavonoids are a group of plant phenolics that provide various health benefits through cell signalling pathways and antioxidant effects. In the present study, a new series of mixed ligand complexes of Co(II), Ni(II), Cu(II) and Zn(II) were synthesized by incorporating curcumin and quercetin flavonoid precursors. The structural features of the synthesized complexes were explored using elemental analysis, thermogravimetric analysis, UV-visible, infrared, NMR, mass and electron paramagnetic resonance spectral analyses and conductivity measurements. These data support an octahedral geometry of the synthesized complexes. In silico biological activity score for the ligand was predicted using PASS online software. ADMET properties were studied using VLS3D online software. Anti-inflammatory and antioxidant activities were experimentally validated which prove that theoretical predictions are in agreement with the experimental results. Interestingly the synthesized complexes interact with calf thymus DNA through groove binding mode. Moreover, they have good potential to cleave pUC19 DNA. Minimum inhibitory concentration values of the synthesized complexes reveal that they have better antimicrobial efficacy than the ligands. Copyright © 2017 John Wiley & Sons, Ltd.

Author keywords

[anti-inflammatory](#) [antioxidant](#) [curcumin Schiff base](#) [DNA cleavage](#) [flavonoids](#) [VLS3D](#)

Indexed keywords

Engineering controlled terms:

[Antioxidants](#) [Binding energy](#) [Bioactivity](#) [Cell signaling](#) [Chelation](#) [Cobalt compounds](#) [Complexation](#) [DNA](#) [Flavonoids](#) [Ligands](#) [Magnetic resonance](#) [Nuclear magnetic resonance](#) [Paramagnetic resonance](#) [Plants \(botany\)](#) [Spectrum analysis](#) [Thermogravimetric analysis](#) [Zinc compounds](#)

Engineering uncontrolled terms

[Anti-inflammatories](#) [Anti-oxidant activities](#) [Conductivity measurements](#) [DNA cleavage](#) [Minimum inhibitory concentration](#) [Mixed ligand complexes](#) [Schiff-base](#) [VLS3D](#)

Engineering main heading:

[Synthesis \(chemical\)](#)

Cited by 27 documents

Saran, P. , Vishnu, D. , Parveen, S.

Biological evaluation of ruthenium(II) complexes appended curcumin derivatives: Synthesis, spectral characterization, anti-oxidant and anti-cancer studies

(2024) Inorganica Chimica Acta

Barreiro-Sisto, U. , Fernández-Fariña, S. , González-Noya, A.M.

Enemies or Allies? Hormetic and Apparent Non-Dose-Dependent Effects of Natural Bioactive Antioxidants in the Treatment of Inflammation

(2024) International Journal of Molecular Sciences

Sheela, S.F.S. , Kumar, K.A. , Raman, N.

New homoleptic imine derivative of lawsone and its metal complexes: Preparation, characterization, in vitro and in silico biological investigation

*(2024) Applied Organometallic Chemistry*View details of all **27** citations

Inform me when this document is cited in Scopus:

[Set citation alert >](#)
[Set citation feed >](#)

Related documents

Find more related documents in Scopus based on:

[Authors >](#) [Keywords >](#)

ISSN: 02682605

CODEN: AOCH

Source Type: Journal

Original language: English

DOI: 10.1002/aoc.4030

Document Type: Article

Publisher: John Wiley and Sons Ltd

SciVal Topic Prominence

Topic:

Prominence percentile:



