SYNTHESIS, CHARACTERIZATION, AND BIOLOGICAL ACTIVITIES OF NEW HYDRAZONE DERIVATIVE.

Ilhem Selatnia [1*], Saliha SAOULI[1], Oday Mohammad Ahmad KHAMAYSA[1], and Assia SID[1].

[1] *Laboratory of Analytical Sciences, Materials and Environmental (LSAME). Larbi Ben M'Hidi University. Oum El Bouaghi.04000. Algeria*

Email*: ilhem.k2006@gmail.com

Code CCO19

Communications Orales

Introduction & Objectives:

In recent years, the development of new synthesized organic compounds possessing a wide range of biological activities has attracted much attention [1]. Among them, hydrazone and its derivatives have become a center of attraction in recent researches because they possess not only a widespread of pharmaceutical and biological activities but also various applications in industrial chemistry [2]. Due to their reactivity towards both electrophiles and nucleophiles which may be related to the presence of N-N and C=N bonds in their molecular structures [3], the pharmacological effects of hydrazone derivative compounds such as antimicrobial, anti-inflammatory, antioxidant, and anticancer [4] are at the forefront.

Methodology (Material and methods):

Preparation of 1-(2,5-bis((E)-4-isopropyl benzylidene) cyclopentylidene)-2-(2,4 dinitrophenyl) hydrazine (A):

At (50-60 C), a mixture of the (2E,5E)-2,5 bis(4-isopropyl benzylidene) cyclopentanone in methanol and 2,4-dinitrophenylhydrazine in methanol acidified with concentrated sulphuric acid was stirred for 3 h and allowed to cool to 25 C. The formed precipitated was filtered and dried.

Results and Discussion:

Table . Antioxidant activity of the hydrazone derivative by the DPPH, CUPRAC, reducing power and superoxide anion radical assays[a]

compound	Antioxidant activities			
	DPPH assay IC_{50} (µg/mL)	CUPRAC assay $A_{0.50}$ (µg/mL)	Reducing power assay $A_{0.50}$ (µg/mL)	Superoxide anion radical assay IC_{50} (µg/mL)
(A)	20.18±1.96	10.83±0.95	34.58±3.36	6.95±0.03
BHA[b]	6.14±0.41	5,35±0,71	7.99±1.87	>200
BHT[b]	12.99±0.41	8.97±3.94	>200	>200

[a] IC_{50} values represent the means ± SEM of three parallel measurements ($p< 0.05$).
[b] Reference compound.

Conclusion : *In vitro* antioxidant activity of synthesized compound **(A)** indicated very interesting activity against antioxidant assays.

Keywords: Hydrazone, DPPH, Biological activities

References

1. Y.F. Baba, Y. Sert, Y.K. Rodi, S. Hayani, J.T. Mague, D. Prim, J. Marrot, F.O. Chahdi, N.K. Sebbar, E.M. Essassi, Synthesis, crystal structure, spectroscopic characterization, Hirshfeld surface analysis, molecular docking studies and DFT calculations, and antioxidant activity of 2-oxo-1, 2-dihydroquinoline-4-carboxylate derivatives, Journal of Molecular Structure, 1188 (2019) 255-268.
2. F. Bergamini, M. Ribeiro, M. Lancellotti, D. Machado, P. Miranda, A. Cuin, A. Formiga, P. Corbi, Synthesis, spectroscopic characterizations, crystal structures and DFT studies of nalidixic acid carbonyl hydrazones derivatives, Journal of Molecular Structure, 1120 (2016) 115-124.
3. K. Pyta, A. Janas, M. Szukowska, P. Pecyna, M. Jaworska, M. Gajecka, F. Bartl, P. Przybylski, Synthesis, docking and antibacterial studies of more potent amine and hydrazone rifamycin congeners than rifampicin, European journal of medicinal chemistry, 167 (2019) 96-104.[4] T. Nasr, S. Bondock, H.M. Rashed, W. Fayad, M. Youns, T.M. Sakr, Novel hydrazide-hydrazone and amide substituted coumarin derivatives: Synthesis, cytotoxicity screening, microarray, radiolabeling and in vivo pharmacokinetic studies, European journal of medicinal chemistry, 151 (2018) 723-739.