 

**2025**

**Egyptian Journal of Chemistry**

**http://ejchem.journals.ekb.eg/**

**Type here your title Capitalize Each Word**



**\***

Abstract

α-aminophosphonate oxadiazoles (**5a-m**) were prepared in high yields by reacting of 1,3,4-oxadiazole acetohydrazide (**3**) with appropriate aldehydes and diethyl phosphite under Kabachnik-Fields conditions using Iron triflate as a catalyst. The reaction conditions were optimized using D-optimal experimental design. Possible reaction mechanisms were considered, and structures of the new products were based upon compatible elementary and spectroscopic evidence. *In vitro* antitumor activities of these compounds were evaluated against human cancer cell lines of colon (HCT116), breast (MCF7) and liver (HepG2) and compared with anticancer drug, Doxorubicin, employing standard MTT assay. Compounds **5i** and **5l** demonstrated good antiproliferative activities against HCT116 tumor cells comparable to doxorubicin with low cytotoxicity towards normal fetal colon cell (FHC). Additionally, their capacity to activate apoptosis cascade was studied in HCT116 cell line by investigating the activation of proteolytic caspases cascade, the levels of Cytochrome C, Bax and Bcl-2. Active caspase-3 level was enhanced by 6-8-folds in HCT116 cell line when stimulated with compounds **5i** and **5l** compared to the control. The level of Caspases 8 & 9 was also increased signifying that intrinsic and extrinsic pathways are both activated. They also induced Bax and down regulated Bcl-2 protein level in addition to over-expressing Cytochrome C level in HCT116 cell line. Also, HCT116 cell cycle was mainly arrested at the Pre-G1 and G2/M phases when treated with compounds **5i** and **5l**.

1. Note

Please read these instructions carefully and print them. At the end of the instructions you will find a button that removes this text and prepares the document for your text. (Note that this button may not work properly if you change in any way this text.) Use the styles, fonts and point sizes as defined in this template, **but do not change or redefine** them in any way as this will lead to unpredictable results.

1. Introduction

We at EJCHEM believe a template should help you, not hinder you, in authoring your paper. It should follow you in how you want to write your paper, not force you to fill in bits and pieces of text. It should allow you to type any text, copy from previous versions, or load an already existing plain text to be formatted. You will therefore find no dialog boxes or fill-in screens. You will not need to remember shortcut keys, to use lists of styles, bother about alignment, indents, fonts and point sizes. Just a mouse-click at one of the menu options will give you the style that you want. The objective of this template is to enable you in an easy way to style your article attractively in a style similar to that of *EJCHEM*. It should be emphasized, however, that the final appearance of your paper in print and in electronic media will very likely *vary to some extent* from the presentation achieved in this Word® document.

1. Organization of the manuscript

The template formats your text by using a Word® feature called ‘Styles’. Styles define the format (or appearance) of a paragraph of text as regards letter size, indentation, line spacing, etc. If you’re not familiar with using styles, do not worry; the template arranges everything for you in a user-friendly way.

USE the main template that will be founded at our website: <https://ejchem.journals.ekb.eg/journal/authors.note>

The manuscript main text should be submitted in Microsoft Word format (\*.doc or \*.docx). Type the main text in 10-point Times New Roman, single-spaced with single line spacing and fully justified right and left. Do not use double-spacing. The manuscript must be formatted in two columns.

**Paper elements:**

1. Title page with author name(s) and affiliation(s)
2. Abstract
3. Keywords
4. Introduction
5. Experimental
6. Results and discussion
7. Conclusion
8. Conflicts of interest
9. Formatting of funding sources
10. Acknowledgment
11. References
    1. Entering text

There are several ways in which you can enter and format your text in this template. The main way is to simply type your text directly to this template. The second way is to copy and paste your text from document and template will help you to arrange your work

Alternatively, you may insert the whole text or parts you previously prepared by using on the ‘Insert’ menu of Word® the option ‘File…’. In that case take care to retain the above mentioned section breaks. After the file is inserted you can style it by placing the cursor in each paragraph and clicking the required style on the drop-down menus.

1. The first page

Naturally, your paper should start with a concise and informative title. Do not use abbreviations in it. Next, list all authors with their first names or initials and surnames (in that order). Indicate the author for correspondence using the third menu option. Present addresses can be inserted using a normal footnote (on the ‘Text’ menu). After having listed all authors’ names, you should list their respective affiliations. Link authors and affiliations using superscript lower case letters. Title should be short but informative, be centered, typed in Times New Roman 14 point and boldface.

Author Name(s) should be listed all authors of the paper (initial(s) for first and middle name(s) and full family name), be centered beneath the title and typed in Times New Roman 11-point, non-italic and boldface. Every name are numbered superscript sequentially with a star symbol “\*” for the corresponding author.

Affiliation(s) should be shown below the author name(s) and typed in Times New Roman 10-point, italic and non-boldface. At least one e-mail address is needed for corresponding with the author.

* 1. The Abstract

An Abstract is required for every paper; it should succinctly summarize the reason for the work, the main findings, and the conclusions of the study. The abstract should be no longer than 200 words. Do not include artwork, tables, elaborate equations or references to other parts of the paper or to the reference listing at the end. The reason is that the Abstract should be understandable in itself to be suitable for storage in textual information retrieval systems.

3. Keywords list all keywords in order of importance, separated by semicolons and should be typed in Times New Roman, 10-point, non-italic and non-boldface.



Fig. 1. A caption is positioned left-justified below the figure or scheme.

1. The main text

You will usually want to divide your article into (numbered) sections and subsections (perhaps even subsubsections). Code section headings using the options in the ‘Text’ menu. Headings should reflect the relative importance of the sections. Note that text runs on after a 4th order heading. Use the heading style for the whole paragraph, but remove the bold coding except for the actual heading.

Type the main text in 10-point Times New Roman, single-spaced with single line spacing and fully justified right and left. Do not use double-spacing. The spacing after paragraph is double.

Ensure that all tables, figures and schemes are cited in the text in numerical order. It is strongly recommended that authors follow the recommendations of the IUPAC Manual of Symbols and Terminology for Physico-chemical Quantities and Units, edited by IM Mills, Blackwell, Oxford, 1988. Abbreviations should be used consistently throughout the text, and all nonstandard abbreviations should be defined on first usage.

Figure and table captions should be 9-point Times New Roman, boldface and non-italic. Initially capitalize only the first word of the caption. Figure captions are to be below the figures and Table titles are to be fully justified right and left above the table.

**Math formulae**

Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

**Text graphics**

Text graphics may be embedded in the text at the appropriate position.

* 1. Tables and figures

please, submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

Artwork can be inserted using the ‘Tables and figures’ menu, by choosing ‘…from file’, or by embedding the graph as an OLE object[[1]](#endnote-1). Make sure you *embed*, rather than *link* the object. Depending on the amount of detail, you can choose to display artwork in one column (18 pica wide) or across the page (38 pica wide). Scale your artwork in your graphics program before incorporating it in your text. If the artwork turns out to be too large or too small, resize it again in your graphics program and re-import it, or use the sizing handles at the corners. The

Table 1

Summary of data obtained from least-squares fit of Eq. (20) to *k*m vs *E*i plots for three selected systems

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Redox moiety | Diluent | Method | *k*0 (s-1) | *E*i0’ V vs SSCE | *γ* | fwhm (V)a |
| R1 | D1 | ILIT | 3.4 x 104 | 0.495 | 95 | - |
|  |  | CV | 3.3 x 104 | 0.474 | 100 | 0.103 |
| R2 | D2 | ILIT | 6.0 x 104 | 0.340 | 24 | - |
|  |  | CV | 6.1 x 104 | 0.346 | 24 | 0.112 |
| R3 | D3 | ILIT | 3.2 x 106 | 0.328 | 12.0 | - |
|  |  | CV | 3.2 x 106 | 0.324 | 12.1 | 0.121 |

aFull-width-half-maximum of the cyclic voltammetric peak.

bThis is the format for table footnotes.Very often you will already have prepared (parts of) your text. If you load that text as a separate document, you can easily insert it into a document based on this template by cutting and pasting between the two documents.

text should not run along the sides of any figure. If it does, right-click the figure, choose ‘Format Object (/Figure)’, choose the ‘Wrapping’ tab and select ‘Top & bottom’. Artwork is normally linked to, and moves with, a paragraph it is linked to. A small anchor symbol should indicate the paragraph to which it is linked. If you do not see the anchor, choose from the ‘Tools’ menu, ‘Options…’, and click the ‘View’ tab. Tick the ‘Object anchors’ tick box. You can move the figure itself by dragging but you can also drag the anchor.

You might find positioning your artwork within the text difficult. In that case you may choose to place all artwork at the end of the text and insert a marker in the text at the desired place. In any case, please keep in mind that the placement of artwork may vary somewhat in relation to the page lay-out.

You can insert a caption below the figure or scheme. To keep the drawing and caption more easily together, select them both (hold down the <SHIFT> key and click both figure and caption) and choose, under the right mouse button, Grouping. Graphs may appear either on a fixed spot in the text or ‘floating’, normally a figure or scheme with a caption, which remains near to the paragraph it is linked to regardless of the text flowing around it. To choose between the two options, right-click the graph, choose ‘Format object’, choose the ‘Position’ tab and tick or clear the ‘Float over text’ tick-box. If grouped with a caption, a figure will always be floating.

**Experimental:** should be written in sufficient detail to enable others to repeat the authors’ work. Chemical compounds should be named according to the systematic rules of IUPAC or Chemical Abstracts. Common trivial names that are accepted by IUPAC can also be used. Units and dimensions should be expressed according to the metric system and SI units. It can be divided into subsections if several methods are described.

**Characterization of prepared compounds**

Organic compounds: Sufficient experimental information should be given by the authors. In particular “supplementary material for publication online” should be constructed for all papers which should at least include representative 1H and 13C NMR spectra.

**Metal complexes:** X-Ray crystal structural determinations are required for metal complexes.

**Nomenclature:** The author is responsible for providing the correct nomenclature which must be consistent and unambiguous. The use of chemical names for drugs is preferred. All newly synthesized compounds should be properly named. The nomenclature should follow current IUPAC guidelines.

The structures of new compounds cannot be included unless they are fully supported by structural proof of their identity and purity. An example of the presentation of names follows (note the use of a period, not a comma, for decimals).

**Diethyl ((4-hydroxyphenyl)(2-(2-((5-(pyridin-4-yl)-1,3,4-oxadiazol-2-yl)thio)acetyl) hydrazinyl)methyl)phosphonate (5g)**

Eluent: *n*-hexane/EtOAc (80/20, v/v). Product **5g** was separated as colorless crystals, yield 68 %. mp 167-169 oC. IR (KBr, cm-1): 3312 (NH), 3271 (OH), 1662, 1627 (C=O), 1612 (C=C), 1589, 1529 (C=N), 1128 (P=O), 950 (P-O-Et), 733 (C-S). 1H NMR (300 MHz, DMSO) δ 8.65-6.40 (m, 8H, CHarom.), 6.21 (s, 1H, NH), 4.71 (dd, *J* = 39.9, 9.6 Hz, 1H, CH), 4.56 (s, 1H, NH), 4.08-4.10 (m, 4H, CH2), 3.89 (s, 2H, S-CH2), 3.25 (s, 1H, OH), 1.19 (2 t, *J* = 7.0 Hz, 6 H, 2 CH3). 13C NMR (75 MHz, DMSO) δ 171.0 (C=O), 165.1 (C-O), 159.0 (C-O), 158.1 (C-O), 133.4, 130.9, 129.2, 123.5, 117.2 (aromatic, C-H), 71.5 (d, *J*C-P = 85.0 Hz, C-P), 64.1 (d, 2*J*C-P = 11.5 Hz, CH2), 33.3 (S-CH2), 16.4 (CH3). 31P NMR (120 MHz, DMSO) δ 22.03. MS (*m/z*): M+1 492 (< 5%), 283 (100%). Analysis for C20H24N5O6PS (493.47). Calced.: % C, 48.68; H, 4.90; N, 14.19; P, 6.28; S, 6.50. Found: %. C, 48.70; H, 4.87; N, 14.20.

**Results and Discussion - may be combined or kept separate and may be further divided into subsections. This section should not contain technical details. Abbreviations and acronyms should be used sparingly and consistently. Where they first appear in the text, they should be defined; authors may also explain large numbers of abbreviations and acronyms after the conclusion part.**

* 1. Equations

Conventionally, in mathematical equations variables and anything that represents a value appear in italics. You may choose to number equations for easy referencing. In that case the number should appear at the right margin.

1. Bibliography

References in the text should be indicated by Arabic numerals in square brackets that run consecutively through the paper. Authors should ensure that all references are cited in the text and vice versa. The reference list should contain only literature references; other information (e.g. experimental details) should be placed either in the body of the text, or as a footnote. Each reference should contain only one literature citation. Authors are expected to check the original source reference for accuracy. Journal titles should be abbreviated according to American Chemical Society guidelines (The ACS Style Guide; Dodd, J. S., Ed.: American Chemical Society: Washington, DC, 1997). See examples for journal articles [1], books [2], multi-author books [3], proceedings [4] and personal communications [5], shown in **References** below.

1. Conclusions

The conclusions section should come in this section at the end of the article, before the acknowledgements.

1. Conflicts of interest

In accordance with our policy on Conflict of interest please ensure that a conflicts of interest statement is included in your manuscript here.  Please note that this statement is required for all submitted manuscripts.  If no conflicts exist, please state that “There are no conflicts to declare”.

1. Formatting of funding sources

List funding sources in a standard way to facilitate compliance to funder's requirements.

1. Acknowledgments

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

1. References
2. Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Indicate references by number(s) in square brackets in line with the text. Most journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Endnote (EurJMedChem style). Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style.
3. There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by EJCHEM at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

1. [↑](#endnote-ref-1)