FROM IDEA TO IMPACT: MASTERING THE ART OF RESEARCH WRITING

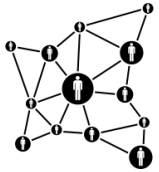
چگونه مقاله علمی بنویسیم؟
راهنمای کامل برای دانشجویان کارشناسی و تحصیلات تکمیلی

چرا مقاله چاپ کنیم؟


به اشتراک گذاری دانش


اعتبار علمی

ثبت مالکیت فکری


شبکه سازی


ادامه تحصیل و دریافت بورسیه


بهبود پژوهش


ارتقا

روش تحقیق

مقدمه

چکیده

ساختار مقاله علمی

انواع مقالات علمی

ساختار مقاله علمی

چکیده

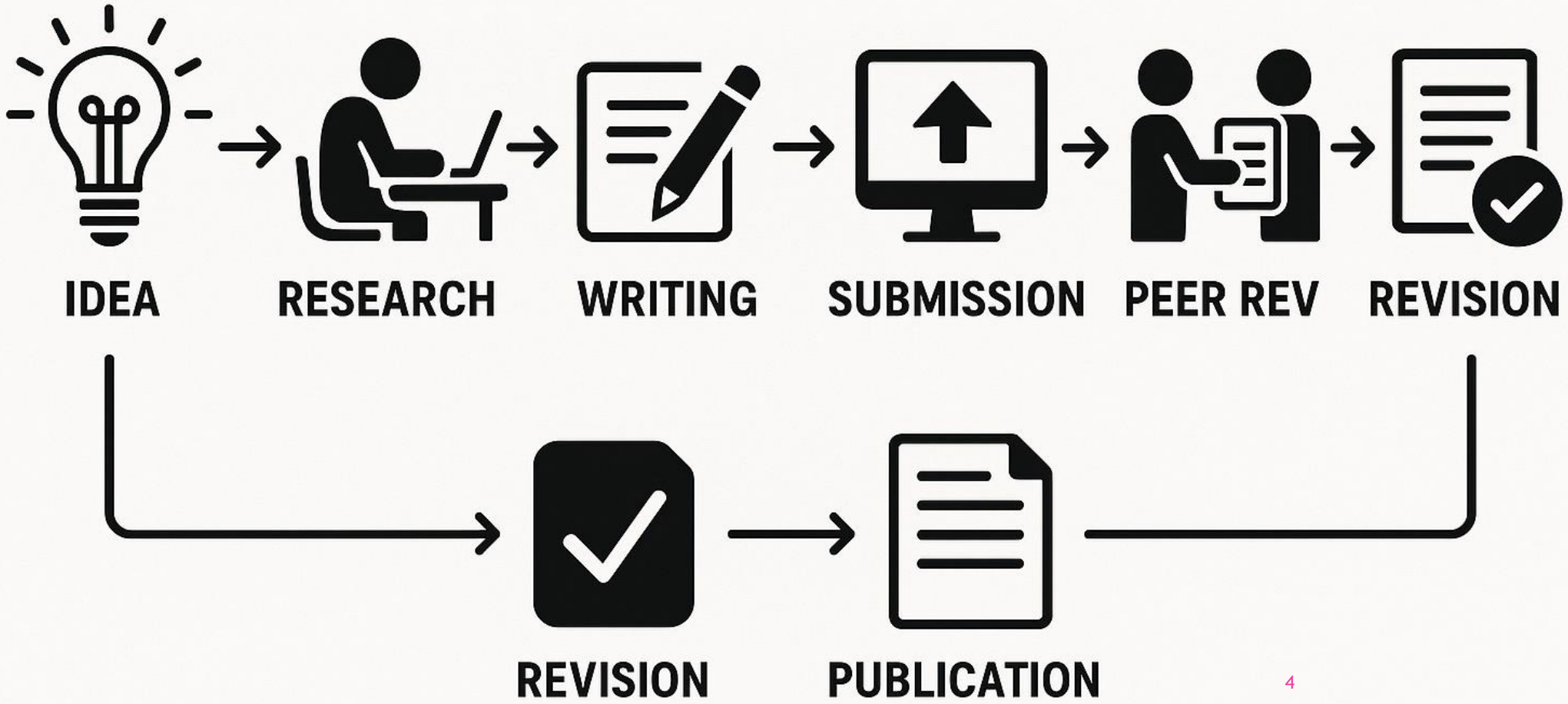
مقدمه

روش تحقیق

انواع مقالات علمی

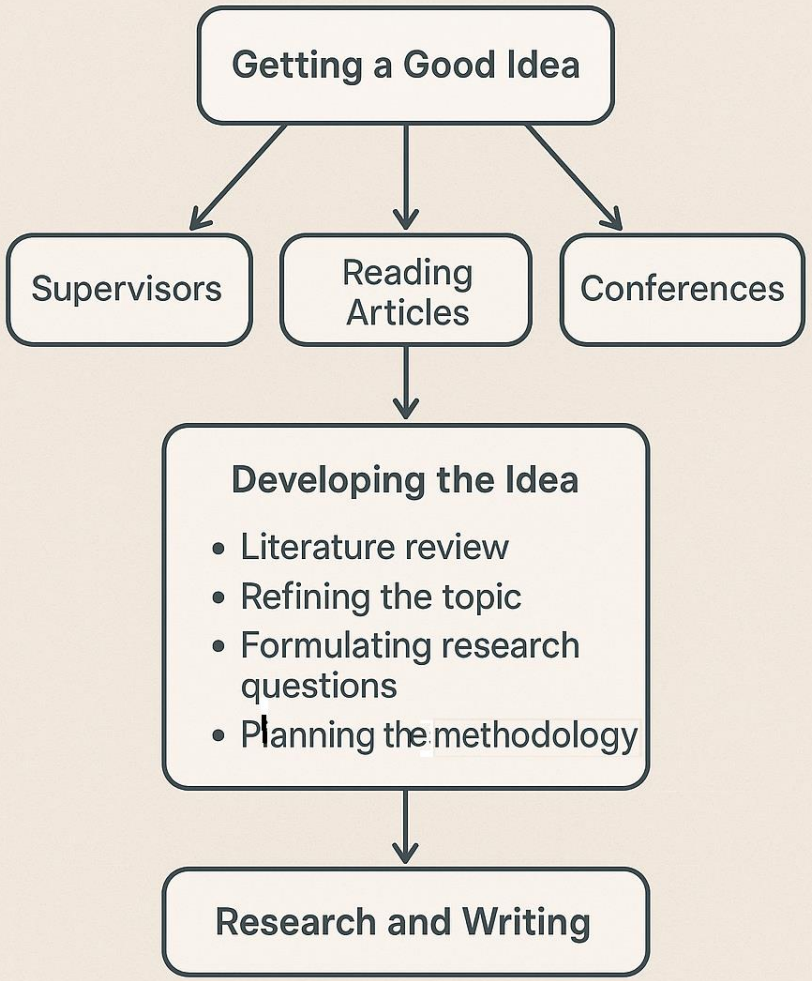
- ✓مقاله پژوهشی Research article
- ✓مقاله مروری Review article
- ✓گزارش کوتاه Short communication

FROM IDEA TO IMPACT

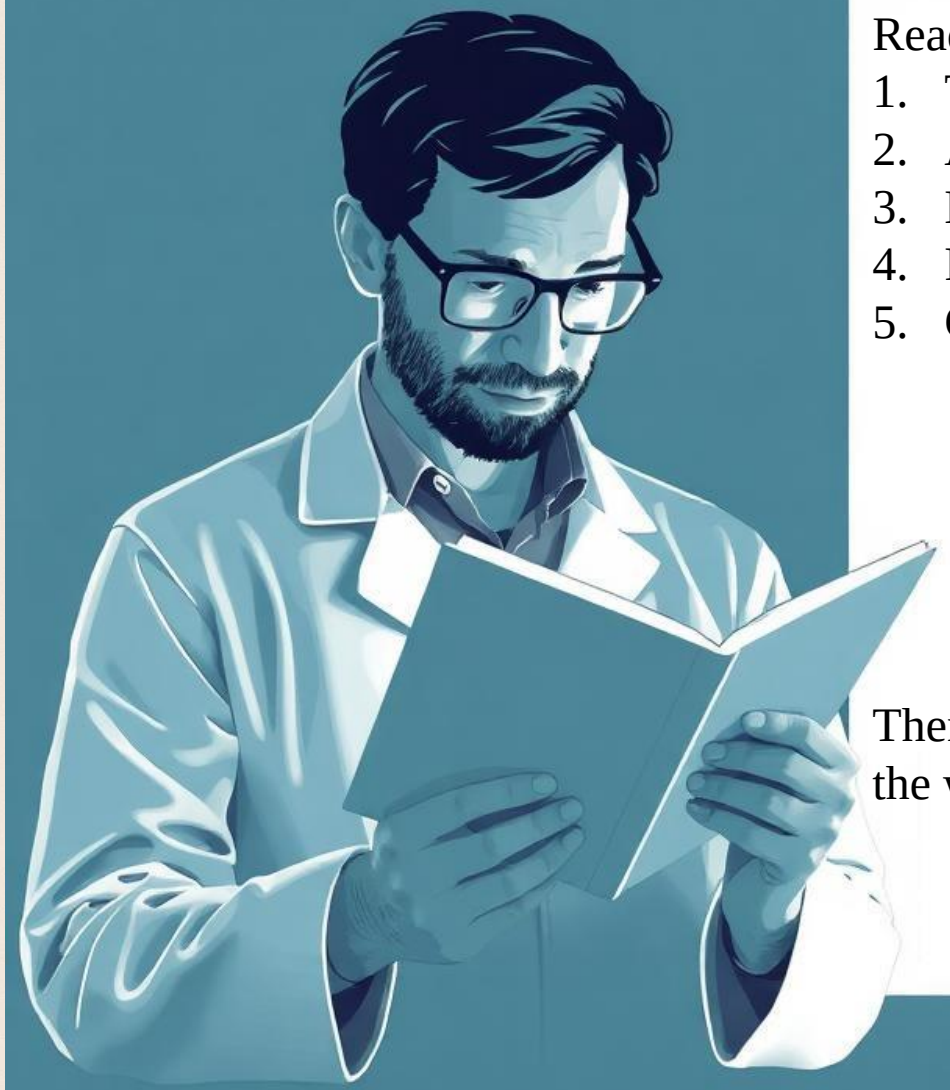


From Idea to Impact

Mastering the Art of Research Writing



Skimming



Read an article effectively:

1. Title
2. Abstract and GA
3. Keywords
4. Figs and Tables
5. Conclusion

Then decide if you want to read the whole manuscript or ignore it

Conducting the Research: From Plan to Execution

Research Design

Define variables → Choose method → Plan procedures

A strong design ensures valid, reproducible results.

Data Collection & Ethics

surveys interviews experiments

- Informed consent
- Confidentiality
- Ethics committee approval

PRO TIP Always pilot your data collection tools.

Data Analysis & Tools

SPSS R Softwares

Choose tools that match your data type and your skills.

انتشار مقاله یک مهارت است

همه پژوهشگران موفق به چاپ کارهای خود نمی‌شوند

- ✓عدم نوآوری یا ارزش علمی کافی
- ✓مجلات معمولاً نتایج مثبت و تأییدشده را ترجیح می‌دهند

IN GOD WE TRUST. EVERYTHING ELSE HAS TO BE PROVEN!

- ✓هر ژورنال الزامات خاصی دارد و انتشار مقاله یک بازار رقابتی است
- ✓ضعف در نگارش علمی

انواع مقالات علمی

ساختار مقاله علمی

چکیده

مقدمه

روش تحقیق

قسمت های مختلف یک مقاله پژوهشی

Title Page

عنوان مقاله
اسامی نویسندگان
آدرس

Abstract

خلاصه ای از پژوهش
حدود ۱۵۰ تا ۲۵۰ کلمه

Introduction

دیگران چه کردند
اهداف و بیان مسئله

Methodology

روش انجام آزمایشات
روش نمونه برداری
دستگاهوری مورد استفاده
نرم افزارها

Results and Discussion

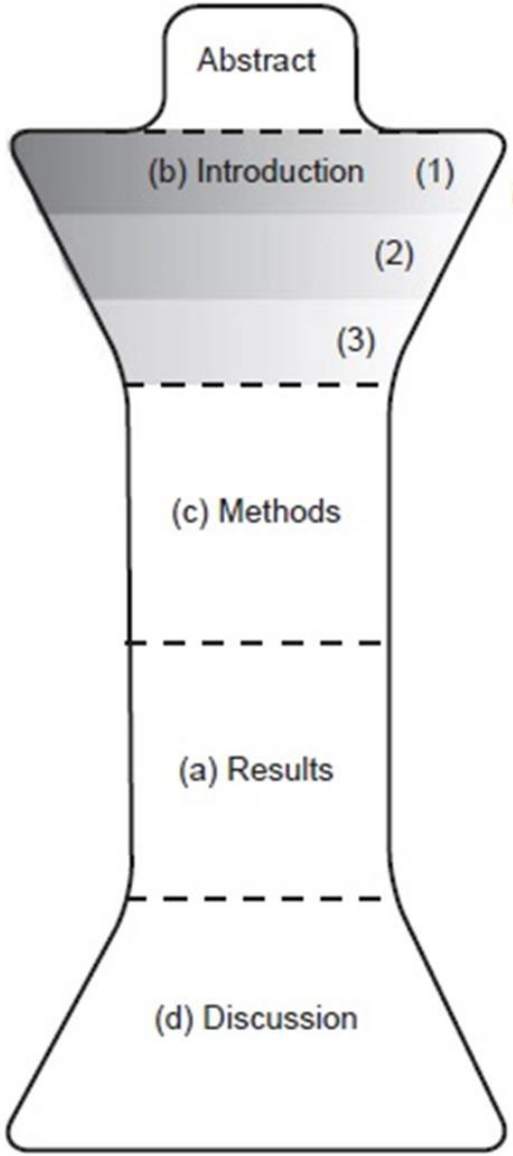
ارائه یافته ها و نتایج با استفاده از تصاویر. جداول و نمودارها
ارتباط بین یافته ها با نتایج موجود در منابع

References

منابع مورد استفاده

AIMRaD Structure

- **Abstract** (چکیده)
- **Introduction** (مقدمه)
- **Methods** (روش ها)
- **Results** (نتایج)
- **Discussion** (بحث)



(a) The whole structure is governed by the Results box; everything in the article must relate to and be connected with the data and analysis presented in the Results section.

(b) (1) The Introduction begins with a broad focus. The starting point you select for your Introduction should be one that attracts the lively interest of the audience you are aiming to address: the international readers of your target journal.

(3) The Introduction ends with a focus exactly parallel to that of the Results; often this is a statement of the aim or purpose of the work presented in the paper, or its principal findings or activity.

(2) Between these two points, background information and previous work are woven together to logically connect the relevant problem with the approach taken in the work to be presented to address the problem.

(c) The Methods section, or its equivalent, establishes credibility for the Results by showing how they were obtained.

(d) The Discussion begins with the same breadth of focus as the Results – but it ends at the same breadth as the starting point of the Introduction. By the end, the paper is addressing the broader issues that you raised at the start, to show how your work is important in the 'bigger picture.'


Presentation Order
1. Abstract
2. Introduction
3. Methods
4. Results
5. Discussion
6. Conclusions
Writing Order
4. Results
5. Discussion
3. Methods
6. Conclusions
2. Introduction
1. Abstract
thesaurysicientist.com

Title

"A Comprehensive and Detailed Investigation Study on the Characterization and Analysis of Novel New Innovative Copper(II) Coordination Complexes with Unusual and Unique Structural Features“

"Structural Characterization of Novel Copper(II) Coordination Complexes with Uncommon Geometries"

"Insights Into the Important and Crucial Mechanistic Pathways for the Catalytically Active Catalysts in the Hydrogen Evolution Reaction (HER) by Using Electrochemical Techniques Like CV and EIS "

"Mechanistic Pathways of Hydrogen Evolution Catalysts Studied by Cyclic Voltammetry and Electrochemical Impedance Spectroscopy"

Title

HFRR and SL-BOCLE Lubricity of Paraffinic Diesel Fuels Considering Different Origins and Final Formulations with Biodiesels and Additives

Unsymmetrical Schiff Base: USB

Abstract

- خلاصه‌ای از کل مقاله
- شامل هدف، روش، نتایج و نتیجه‌گیری
- ۱۵۰ تا ۲۵۰ کلمه
- معمولاً در انتهای نگارش نوشته می‌شود.

Components of an Abstract

1

مقدمه: ۱ -۲ جمله در مورد اهمیت پژوهش بنویسید

Despite the advancements in public health, cancerremains a significant challenge in modern countries.

2

بیان مسئله و اهداف پژوهش:

خواننده مقاله به دقت متوجه می شود که چه چیزی مطالعه شده است.

A series of new Cu(II) Schiff base ...

3

روش تحقیق و انجام آزمایشات:

We used spectroscopic techniques,including FTIR, ...

We also studied the drug-receptor interactions by molecular docking and ADMET ...

4

نتایج اصلی به دست آمده:

Our results show that complex (2) with IC50 = ...

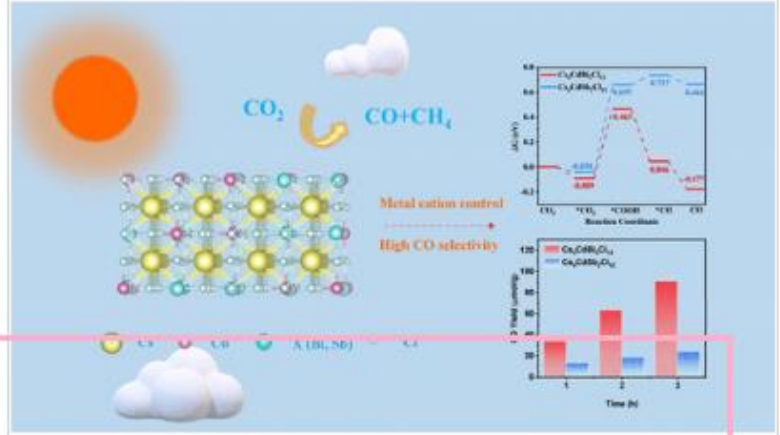
Abstract

Due to the numerous side effects of existing chemotherapeutic agents used to treat cancer and resistance to these agents, there is a need for therapeutics with novel and distinct mechanisms of action. In this study, novel copper complexes of *N*-benzoylthiourea derivatives with different biological activities, which are also known for their anticancer properties, were synthesized and their structures were elucidated by IR, HRMS, and single crystal X-ray (for **L2-Cu** and **L4-Cu**) methods. The cytotoxicity and *in vitro* anticancer activities of the synthesized ligands and copper (II) complexes were tested against MCF-7 (breast adenocarcinoma), A549 (non-small cell lung carcinoma), and HCT116 (human colon carcinoma) cell lines. In HCT116 cells, **L1** (IC_{50}: 11.29 µM), **L3** (IC_{50}: 17.02 µM), and **L1- Cu** (IC_{50}: 8.86 µM) had the most cytotoxic effect, whereas **L3-Cu** had the best cytotoxic effect (IC_{50}: 4.46 µM) in A549 cells. Molecular docking simulations divulged significant interactions and binding affinities into active areas of each target. From these results, the **L3- Cu** complex displayed considerable biological activity than the **L1-Cu** complex against on A549 cells. The stability constants of Cu(II) complexes were calculated by applying the HYPERQUAD program to the data obtained from the potentiometric titration in the 0.1M NaCl ionic strength in 40% acetonitrile: water solvent system. According to all the results, *N*benzoylthiourea copper (II) complexes could be evaluated as promising anticancer agents.

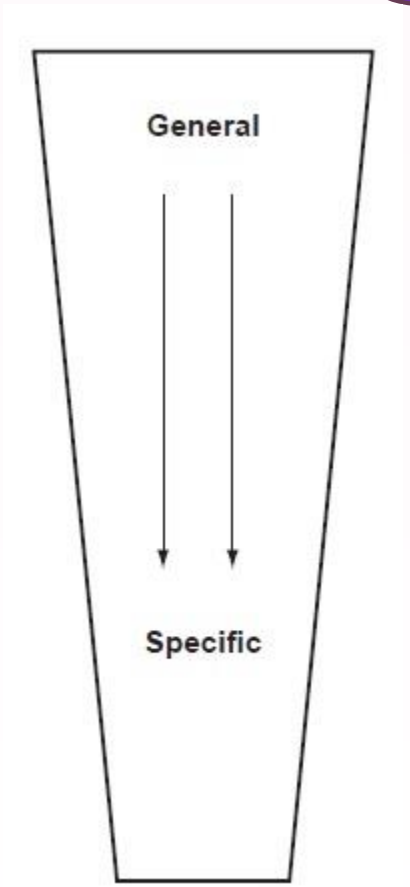
Inorganic Chemistry

Effect of Trivalent Metal Cations in Layered Double Perovskites on Highly Selective CO_2 Photoreduction to CO

Trivalent metal cation engineering in vacancy-ordered layered double perovskites (LDP) is a useful strategy to tune photocatalytic activity. However, the regulatory mechanism of cation composition on photocatalytic performance still lacks in-depth understanding. This study explores vacancy-ordered LDP with the formula $Cs_4CdX_2Cl_{12}$ (X = Bi, Sb) for photocatalytic CO_2 reduction. The catalytic performance is fine-tuned by regulating the composition of $M^{(III)}$-site metal ions. The yields of CO and CH_4 from $Cs_4CdSb_2Cl_{12}$ MCs were measured at 23.81 and 2.68 μmol g^{-1}, resulting in a CO selectivity of 89.9%. $Cs_4CdBi_2Cl_{12}$ demonstrated higher yields, with CO and CH_4 produced at 90.77 and 2.53 μmol g^{-1}, achieving a CO selectivity of 97.2%. In addition, *in situ* diffuse reflectance infrared Fourier transform spectra reveal that the modulation of metal ions at the $M^{(III)}$-position can enhance the photocatalytic activity of $Cs_4CdX_2Cl_{12}$ (X = Bi, Sb) MCs. Density functional theory (DFT) analysis suggests that Bi displays a lower energy barrier than Sb for the rate-determining step, thus facilitating the effective photocatalytic reduction of CO_2 to CO. These findings highlight the influence of metal cation selection on structural properties and catalytic performance.



Introduction



- بیان مسئله و اهمیت آن
- مرور کوتاه ادبیات موضوع
- شکاف پژوهشی
- هدف پژوهش و فرضیه‌ها
- نتایج

New Cu(II) complexes of unsymmetrical N_2O and N_2O_2 type Schiff base ligands: Molecular docking and pharmacophore modeling studies against a DNA duplex, Zika virus and Dengue fever proteases

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[b] School of Chemistry, UNSW Sydney, Sydney, New South Wales 2025, Australia

1. Introduction

The use of coordination complexes to treat diseases has gained great consideration [1,2]. Coordination complexes containing Cu(II) are involved in numerous biological processes and can take part in intercellular redox reactions, catalytic processes, and other biological processes [3–6]. Schiff-base ligands, such as with symmetrical salen-type Schiff bases, are particularly popular. Schiff base ligands and their complexes have shown great promise in various areas, such as bacterial and cancer treatment, catalysis, nonlinear optics (NLO), and industrial applications [7–10]. Salen-type Schiff bases are widely researched because of their ease of synthesis, structural diversity and capacity to coordinate to distinct metal ions of different oxidation states [11,12]. There are two main types of salen-type Schiff bases: symmetrical and unsymmetrical. Symmetrical Schiff bases are extensively reported, but their unsymmetrical counterparts are less common. Our experience and literature show that the equimolar reaction of aliphatic diamines with salicylaldehyde derivatives usually results in the formation of symmetrical Schiff bases even under controlled conditions [13,14]. We have recently focused our attention on the synthesis of unsymmetrical Cu(II) Schiff-base complexes by a template method and studied their biological activities in different processes [18,19].

Zika and dengue virus are both arboviral diseases transmitted by Aedes mosquitoes. The World Health Organization (WHO) has emphasized that these viruses are serious threats worldwide and that the risk of infection is considerable [15–17]. Hence and in continuation of our previous studies, herein we report the synthesis of two mixed ligand Cu (II) complexes with a tridentate N_2O type Schiff base ligands and a pyridine (py) coligand. Two corresponding Cu(II) complexes with unsymmetrical salen-type Schiff bases were also synthesized and characterized. The potential of these complexes to interact with DNA, Zika or Dengue viruses was studied by molecular docking and pharmacophore modeling. The results revealed that such complexes could be potential inhibitors for the main proteases of the studied viruses.

2. Materials and methods

All chemicals and solvents were used as received. Meso-1,2-diphenyl-1,2-ethylenediamine and $[Cu(SB^1)(py)]ClO_4$ were synthesized as previously described [20]. Fourier-transform infrared (FT-IR) spectra were recorded on KBr pressed powder discs (400–4000 cm^{-1}) using a Shimadzu 8400 s spectrometer. Elemental analyses were

Materials and Methods

- ✓ شرح دقیق ابزار، مواد و روش‌ها
- ✓ امکان تکرارپذیری توسط دیگران
- ✓ شامل طراحی آزمایش، نرم‌افزارها، تحلیل آماری
- ✓ کاملا مرتبط با نتایج
- ✓ اطلاعات تکمیلی SI
- ✓ دوباره نویسی کار تکراری×

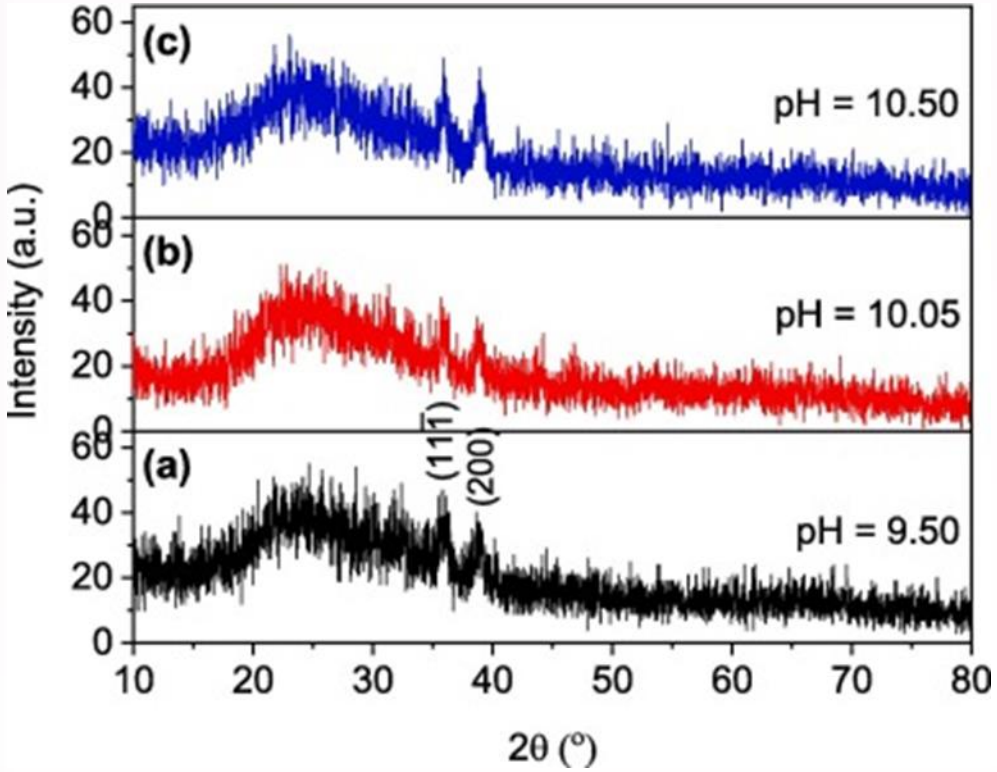
Results and Discussion

- ✓ارائه یافته‌ها و تفسیر نتایج
- ✓فقط داده‌هایی که واقعاً مهم هستند را بیاورید و بقیه در SI (Figure S.1, Table S.1)
- ✓استفاده از جداول، نمودارها و تصاویر
- ✓اعداد و داده‌ها باید شفاف و دقیق باشند
- ✓مقایسه با مطالعات پیشین
- ✓محدودیت‌ها و پیشنهادها
- ✓نتیجه‌گیری نهایی از تحقیق

Results and Discussion

نبایدها

- لطفاً از بیان جملاتی که پشتوانه علمی/منطقی ندارند، اجتناب کنید.
- مطالب تکراری



Results and Discussion

1.6

1

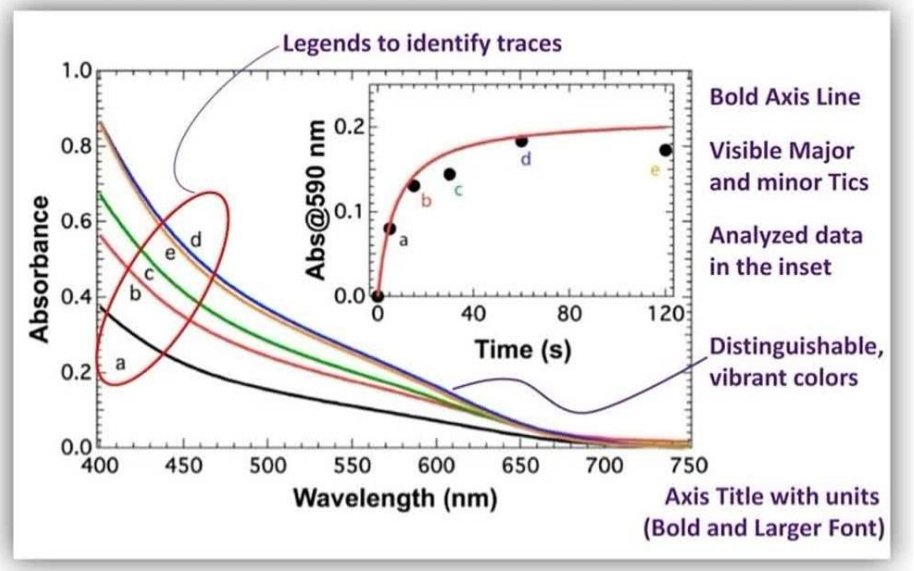
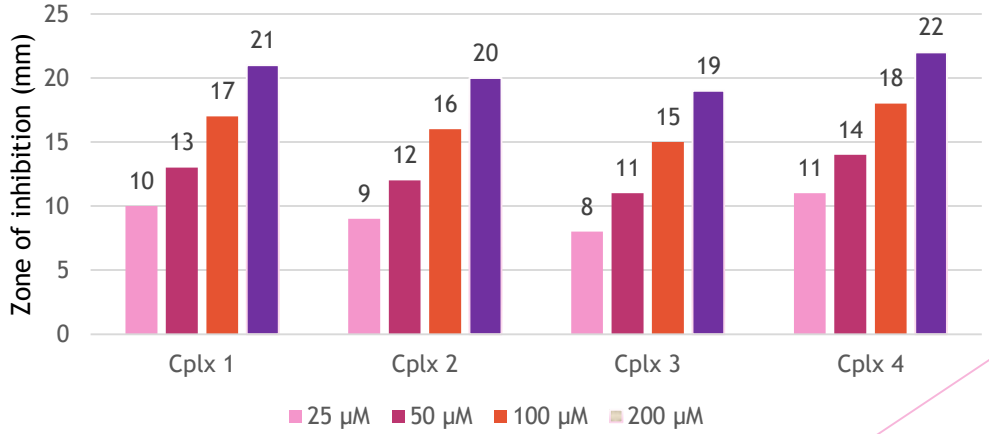


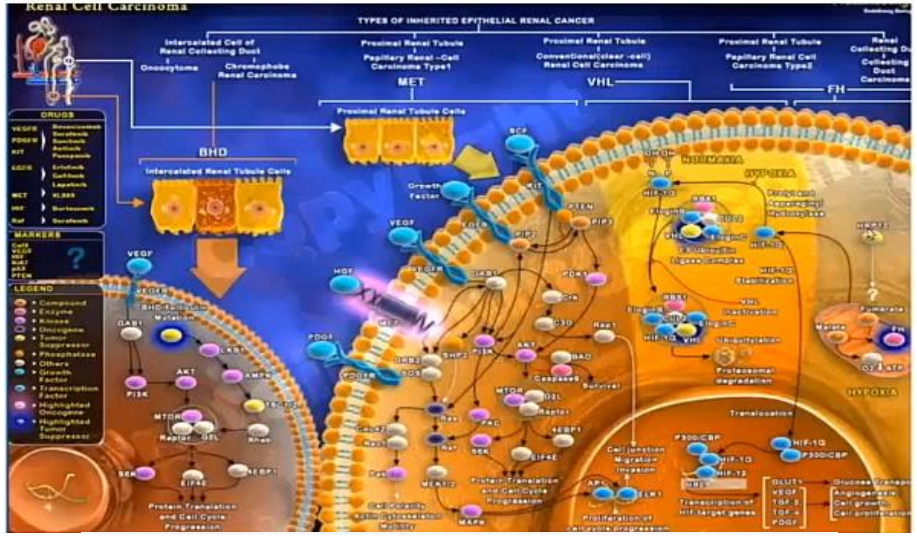
Table: Antibacterial Activity Results (*Zone of inhibition in mm; average of three replicates*)

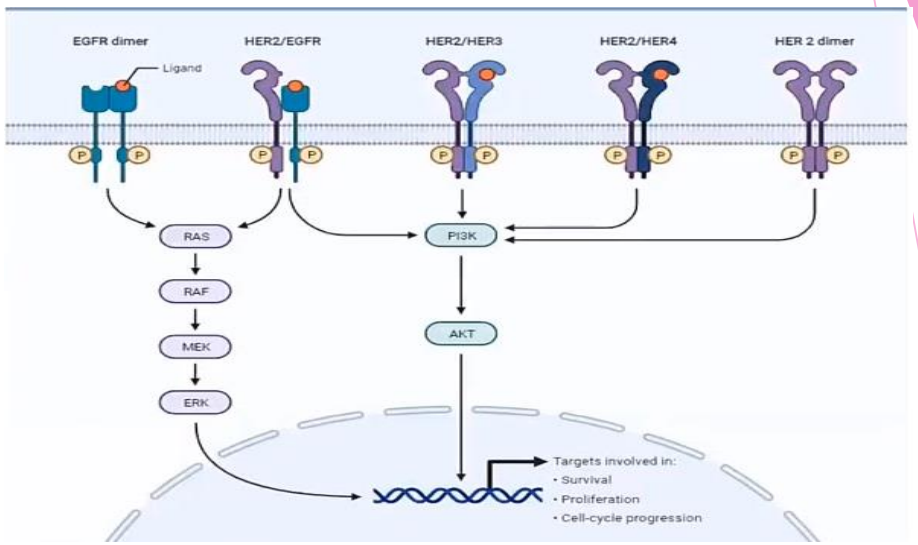
Complex	Conc. (µg/mL)	S. aureus (G+)	B. subtilis (G+)	E. coli (G−)	P. aeruginosa (G−)
Cpx1	25	10	9	8	7
	50	13	12	11	9
	100	17	15	14	12
	200	21	19	18	16
Cpx2	25	9	8	7	6
	50	12	11	10	8
	100	16	14	13	11
	200	20	18	17	15
Cpx3	25	8	7	6	5
	50	11	10	9	7
	100	15	13	12	10
	200	19	17	16	14
Cpx4	25	11	10	9	8
	50	14	13	12	10
	100	18	16	15	13
	200	22	20	19	17

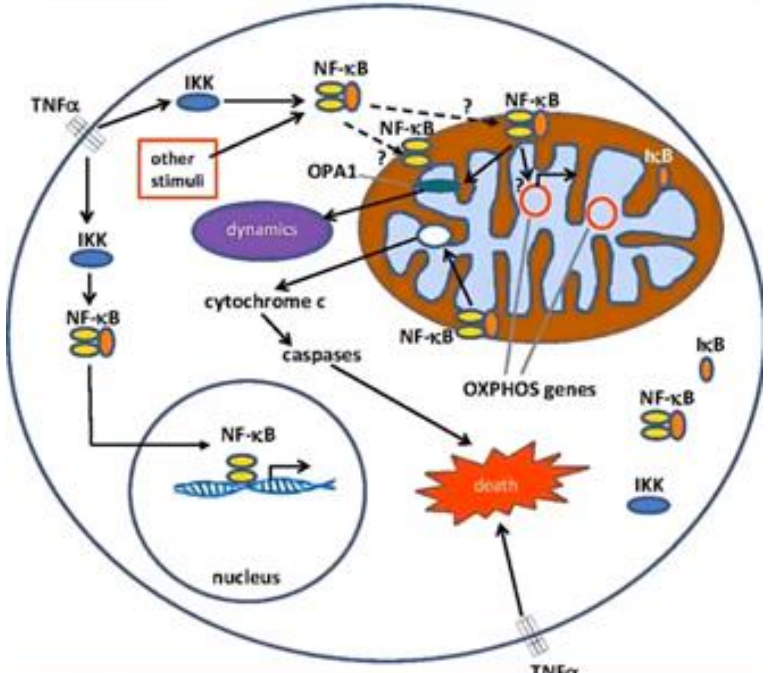
Antibacterial activity (Zone of inhibition (mm)) for S. aureus (G+) at different concentrations.

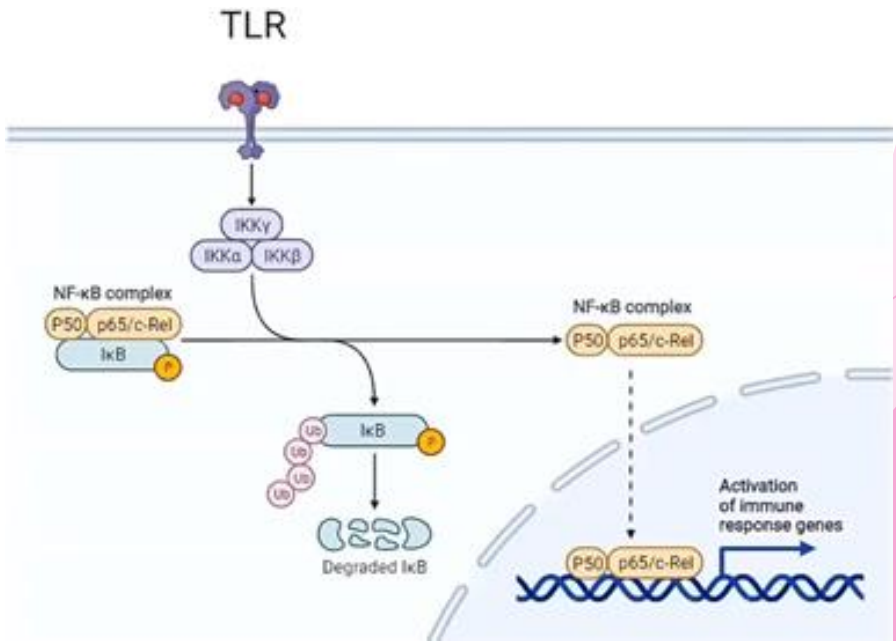


سادگی در طراحی شکل‌ها



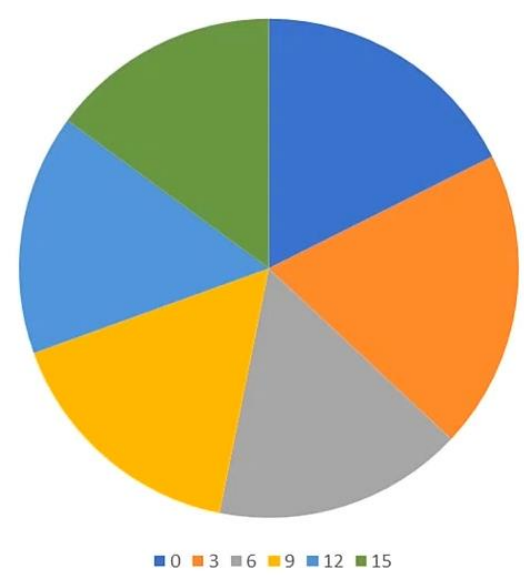


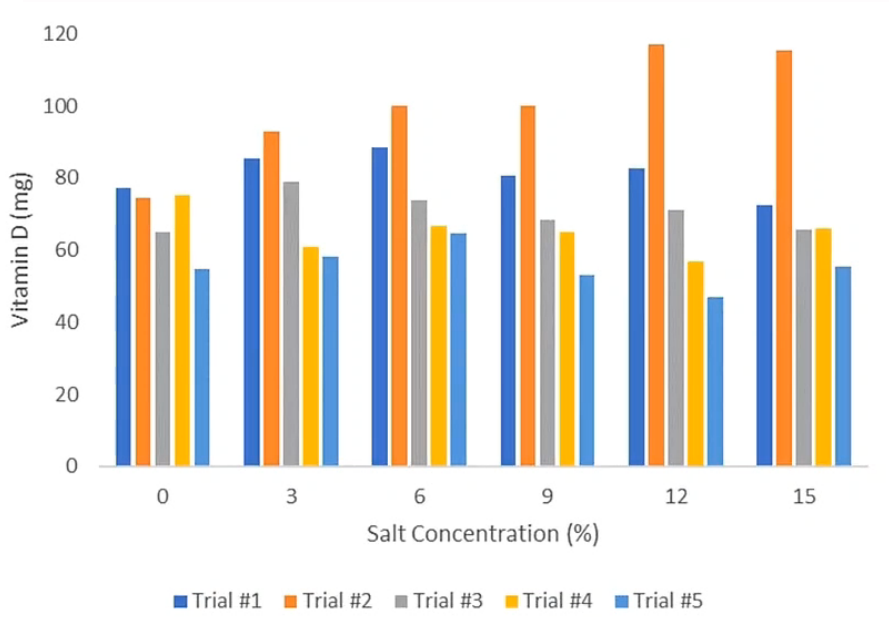


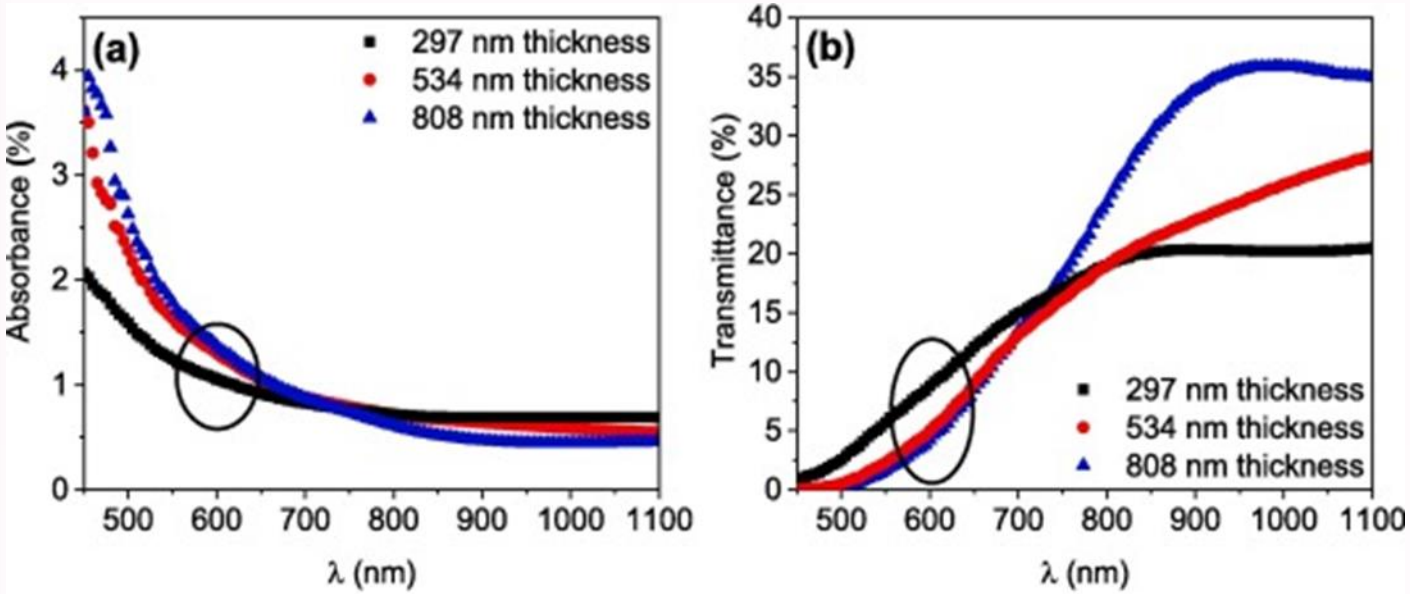


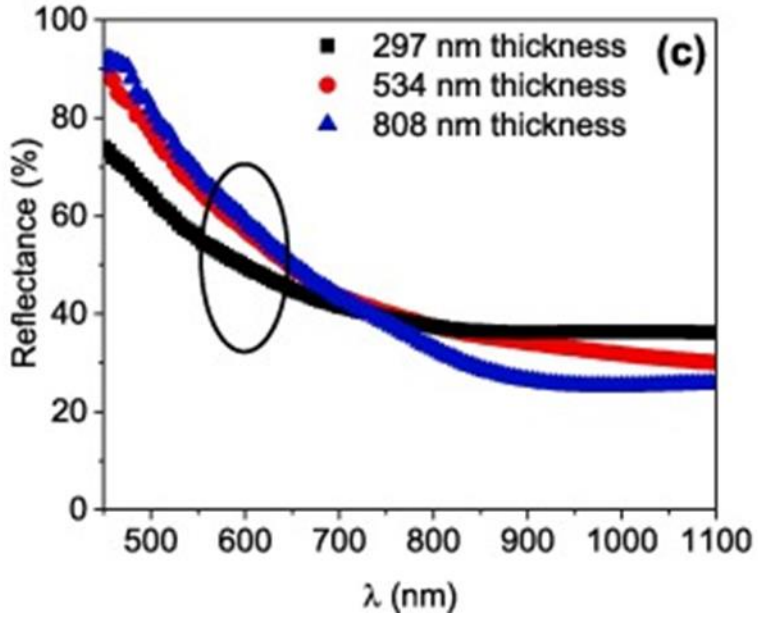
Results and Discussion

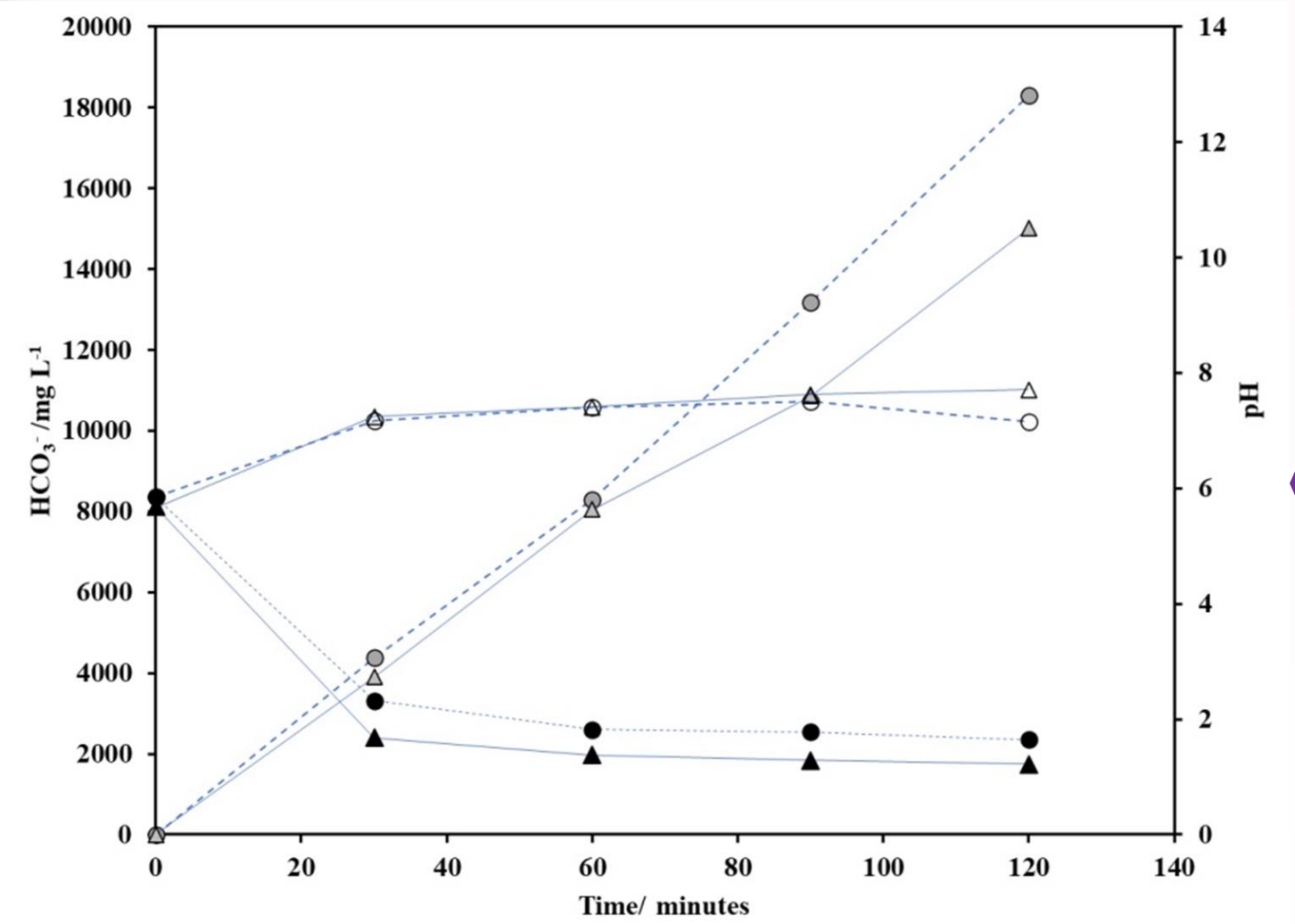
انتخاب نوع مناسب نمودار

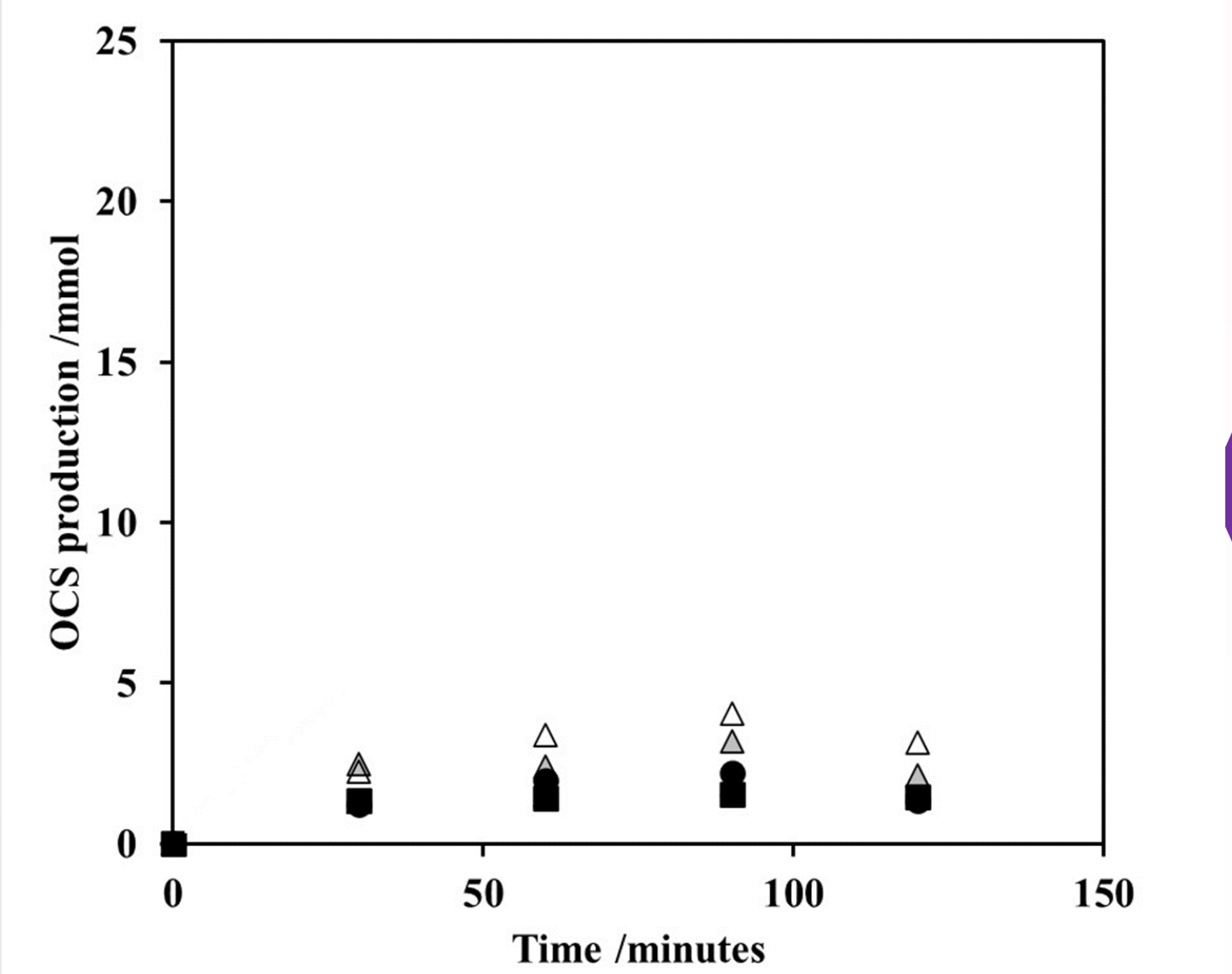


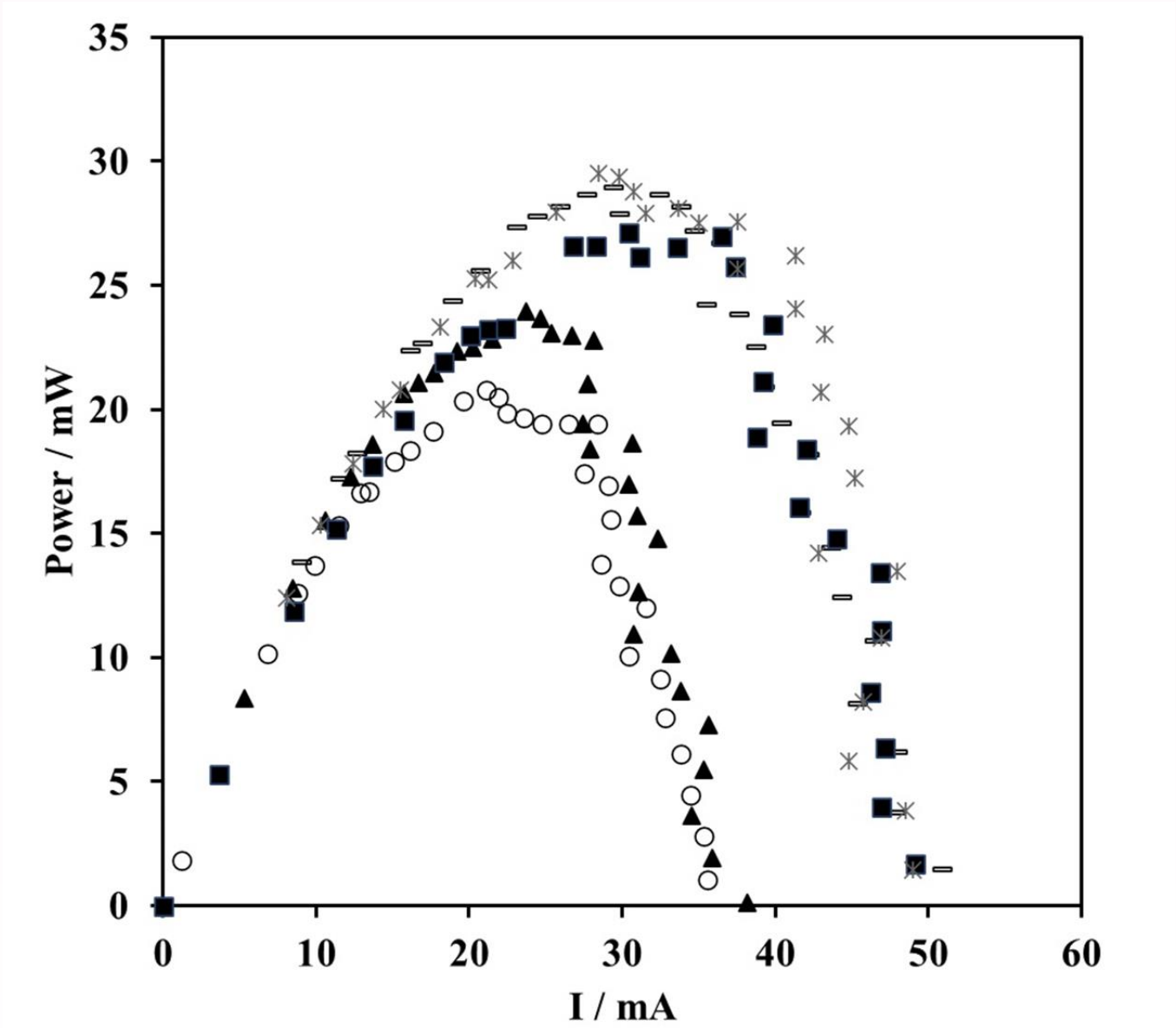



(a)
297 nm thickness
534 nm thickness
808 nm thickness
Absorbance (%)
λ (nm)
(b)
Transmittance (%)
λ (nm)


(c)
297 nm thickness
534 nm thickness
808 nm thickness
Reflectance (%)
λ (nm)


20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
HCO_3^- /mg L^{-1}
14
12
10
8
6
4
2
0
pH
0
20
40
60
80
100
120
140
Time/ minutes


OCS production /mmol
25
20
15
10
5
0
0
50
100
150
Time /minutes


Power / mW
I / mA
0
5
10
15
20
25
30
35
0
10
20
30
40
50
60

Avoid Redundancy:

❌ *"It is important to note that the results clearly demonstrate a significant increase in performance."*
✅ **Improved:** *"The results show a significant increase in performance.“*

❌ *"The absolutely essential key factor in this process is the temperature."*
✅ **Improved:** *"The key factor in this process is temperature.“*

❌ *"Due to the fact that the experiment was conducted under controlled conditions,*
it can be inferred that the results are reliable."
✅ **Improved:** *"Because the experiment was controlled, the results are reliable."*

Conclusion

- ✓ با قدرت شروع کنید.
- ✓ چه چیزی به دانش موجود اضافه می کنید؟
- ✓ اهمیت و کاربرد
- ✓ تکرار دوباره چکیده نیست.

References

- ✓استفاده از سبک استاندارد مانند APA، MLA، یا ACS
- ✓ابزارهای مدیریت منابع: Zotero، Mendeley
- ✓دقت در جزئیات منابع بسیار مهم است

Selection of suitable paper

- ✓توجه به مجله Aim & Scope
- ✓شاخص‌هایی مثل Impact Factor، Q1تا Q4
- ✓بررسی مجلات نامعتبر Predatory Journals

ارسال مقاله و فرآیند داوری

انتخاب مجله مناسب

ارجاع دهی و منابع

بحث و نتیجه گیری

نتایج

Send

- ✓- آماده‌سازی طبق فرمت مجله
- ✓- نوشتن Cover Letter
- ✓ -آشنایی با فرآیند Peer Review
- ✓ -پاسخ علمی و مؤدبانه به داوران

اخلاق در پژوهش و انتشار

ارسال مقاله و فرآیند داوری

انتخاب مجله مناسب

ارجاع دهی و منابع

بحث و نتیجه گیری

اخلاق در پژوهش و انتشار

- ✓- آماده‌سازی طبق فرمت مجله
- ✓- نوشتن Cover Letter
- ✓-آشنایی با فرآیند Peer Review
- ✓-پاسخ علمی و مؤدبانه به داوران

ابزارهای کمکی مقاله نویسی

- ✓ برای زبان انگلیسی Grammarly, QuillBot
- ✓ برای بررسی سرقت علمی iThenticate
- ✓ برای منابع EndNote, Mendeley
- ✓ برای طراحی گرافیکی شکل‌ها Canva

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ابزارهای کمکی مقاله نویسی

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Thanks