

# WEST AFRICAN JOURNAL OF PHARMACY

## EDITOR-IN-CHIEF

Dr. Olufunsho Awodele

## EDITOR

Dr Olugbenga Fajemirokun

## EDITORIAL ADVISERS

Prof Kwame Sarpong (Ghana)	Dr Ibrahim Oreagba (Nigeria)
Prof (Mrs) MN Femi-Oyewo (Nigeria)	Prof Wilson Erhun (Nigeria)
Prof JSK Ayim (Ghana)	Prof Amara Chukwu (Nigeria)
Prof UE Mendie (Nigeria)	Prof ND Ifudu (Nigeria)
Prof (Mrs) CI Igwilo (Nigeria)	Prof CO Usifoh (Nigeria)
Prof 'Fola Tayo (Nigeria)	Prof Joshua Eniojukan (Nigeria)
Mr Wiltshire Johnson (Sierra Leone)	Associate Prof P. Tarpowah Kear Jr (Liberia)
Mr Jimmy Olu Coker (The Gambia)	Prof Azuka Oparah (Nigeria)
Prof Mahama Duwiejua (Ghana)	Dr Suleiman Ismail (Nigeria)
Dr Amos Fatokun (UK)	Dr George Udeani (USA)

## OFFICERS OF THE WEST AFRICAN POSTGRADUATE COLLEGE OF PHARMACISTS

<b>President</b>	- Prof. Emeritus Kwame Sarpong (Kumasi, Ghana)
<b>1st Vice President</b>	- Prof. (Mrs) Cecilia Igwilo (Lagos, Nigeria)
<b>2nd Vice President</b>	- Mrs. Markieu Janneh-Kaira, FPCPharm (The Gambia)
<b>Secretary-General</b>	- Prof. Noel Wannang, FPCPharm (Nigeria)
<b>Deputy Secretary-General</b>	- Major Thomas W. Tucker, FPCPharm (Sierra Leone)
<b>Editor-In-Chief</b>	- Dr. Olufunsho Awodele, FPCPharm (Nigeria)
<b>Treasurer</b>	- Mr. Joseph S. Weah (Monrovia, Liberia)
<b>Immediate Past President</b>	- Rev. Tijli T. Tye Fsr, FPCPharm (Freetown, Sierra Leone)
<b>Chief Examiner</b>	- Prof. MN Femi Oyewo, FPCPharm (Lagos, Nigeria)
<b>Chairman, Joint Faculty Board</b>	- Prof. Azuka C. Oparah, FPCPharm (Benin, Nigeria)

## ANNUAL SUBSCRIPTION

Nigeria	-	NGN 3000
West Africa	-	USD 20
Africa	-	USD 30
United Kingdom	-	£ 70
United States	-	USD 100
Other Countries	-	USD 150

© All rights reserved.

West African Postgraduate College of Pharmacists  
6, Taylor Drive, PMB 2023, Yaba,  
Lagos, Nigeria

E-mail: wajpeditor@gmail.com

Tel: +234 802 351 9433, +234 807 724 6145

ISSN 1116-9096 Electronic ISSN: 2384-6674

# West African Journal of Pharmacy Author Guidelines

## Disclaimer

All expressions of opinions, data and statements appearing in articles or advertisements in this journal are published on the authority of the writer concerned. They are not to be regarded as necessarily expressing the views of the publishers or product endorsement by the publishers. Nonetheless, the Editorial Committee will do its utmost to ensure that incorrect data, misleading data, opinions or statements do not appear in the journal. However, the publishers cannot be held responsible for inadvertent errors or omissions, and have no liability to any person or institution regarding claims, loss, or damage, caused or alleged to be caused, directly or indirectly by the use of information or data contained in the Journal.

## Aims

- To foster multi-disciplinary research and collaboration among pharmaceutical scientists, practicing pharmacists, pharmaceutical industries and the healthcare sector, as well as provide an international forum for the communication and evaluation of data, methods and opinions in pharmacy practice and related disciplines.
- To promote pharmacy practice research for the advancement of pharmacy profession.
- To enhance the competencies of practicing pharmacists.

## Editorial Policy

The West African Journal of Pharmacy is a biannual publication of the West African Postgraduate College of Pharmacists. West African Journal of Pharmacy considers all manuscripts on the strict condition that they have not been previously published, nor are they submitted for consideration for publication or in press elsewhere.

West African Journal of Pharmacy publishes original research papers, critical reviews, personal views and short communications in the following areas:

- Pharmaceutical Sciences: Pharmaceutics and Pharmaceutical Technology, Pharmacology and Toxicology, Pharmaceutical/Medicinal Chemistry and Analysis, Pharmacognosy, and Pharmaceutical Microbiology.
- Clinical Pharmacy, Pharmaceutical Care, Medicines Management, Pharmacoeconomics, Pharmacy Management, and Public Health Pharmacy.
- Other aspects of Pharmacy Practice such as Hospital, Community, Industrial, Social and Administrative Pharmacy
- Biomedical and related disciplines

Contributions to West African Journal of Pharmacy will be subjected to review at the discretion of the Editorial Office and papers accepted may be subject to editorial revision. Decisions regarding acceptability will be made on the basis of the quality of science, the contribution of the work to the field, the suitability of the work for the Journal and the presentation of the manuscript. Contributions submitted by the Journal's Editors and Editorial Board members are subject to the same peer review standards as papers submitted by all other authors.

## Manuscript Submission

To submit a manuscript to the journal you will need to go to the WAPCP site ([www.wapharm.org](http://www.wapharm.org)) and follow the links West African Journal of Pharmacy (WAJP) and instructions to our online submission system. Step-by-step instructions are available on the website. If you are unable to submit through the journal site, send the manuscript as an e-mail attachment to us: [wajpeditor@gmail.com](mailto:wajpeditor@gmail.com) and include the journal name and "Article Submission" in the subject line.

## Correspondence should be directed to:

The Editor-in-Chief  
West African Journal of Pharmacy  
West African Postgraduate College of Pharmacists  
6, Taylor Drive, PMB 2023, Yaba, Lagos  
Nigeria  
E-mail: [wajpeditor@gmail.com](mailto:wajpeditor@gmail.com)  
Tel: +234 8077246145, +234 8023519433  
ISSN 1116-9096 Electronic ISSN: 2384-6674

### **Manuscript Preparation**

The maximum length of manuscripts should be 6000 words (24 double-spaced typewritten pages) for review, 3000 words (18 pages) for research articles, 1,500 (6 pages) for technical notes, commentaries and short communications

### **Manuscript Format**

The preferred format of all manuscript is MS Word (Font type: Calibri, Font size: 11). Illustrations (figures) and images must be inserted in the manuscript at the position they should appear when published.

### **Manuscript Style**

The Language of the journal is English. Each manuscript should be typed double-spaced on A4 (8.5" × 11") paper size with 1 inch margins. It should be arranged in the following order: Title, Running title (Maximum of 5 words), Abstract, Key words (3 to 5), Introduction, Materials and Methods (Methods for Operational Research), Results, Discussion, Conclusion, Acknowledgement, and References.

### **First page of manuscript**

This should include the title of the article, authors' names (First name, middle initial and then the last name of each author) and their affiliations. The corresponding author must provide the full corresponding address (including telephone and e-mail address) at the bottom of the page.

### **Second page of manuscript**

The Abstract (no more than 250 words) should be presented in the second page along with title, running title of the article and keywords. The abstract should be structured into: Background, Objectives, Methods, Results, and Conclusion.

### **INTRODUCTION**

An introduction should provide a background to the study (appropriate for an international audience). Related literature based on the objectives of the study should be indicated, and clearly state the specific objectives of the study at the end of this section. Please ensure that any abbreviations and all symbols used in equations are fully defined. Approximate length: 500-1000 words.

### **METHODS**

This section should describe the materials and methods used in sufficient detail to allow the study to be replicated. Please include details of ethical approval in this section. Methods of data analysis including the appropriate statistical analysis performed should be provided. Approximate length: 500-1000 words.

### **RESULTS**

This section should first summarize all the results in text before referring to tables and figures for details. Please limit the number of tables and figures. It is essential to include statistical analyses or other indicators to enable assessment of the variance of replicates of the experiments. Data should not be repeated in figures and tables. Approximate length: 1000-1500 words.

### **DISCUSSION**

The discussion section should summarize the main findings, interpret the findings and compare with previous studies, as well as the contribution made to the field. Indicate unanswered questions/ provide direction for future research. This should be followed by a critique of the strengths and limitations of the research including any policy limitations. Approximate length: 1000 words.

### **CONCLUSION**

A brief conclusion section should summarize the salient findings of the study based on the study objectives. Authors are strongly advised to emphasize the contribution made to the field by their study in this section. Approximate length: 200 words.

### **ACKNOWLEDGEMENTS**

This section must include details of the following: (i) any funding provided for conduct of the study and/or preparation of the paper; (ii) relevant conflicts of interest for all authors; and (iii) all persons who made substantial contributions to the work, but who do not meet the criteria for authorship.

### **REFERENCES**

References should be typed single-spaced and numbered consecutively in the order in which they are cited in the text.

Full names of all the authors should be indicated. Arabic numerals (superscript), e.g., (<sup>1</sup>, <sup>1,3,5</sup> or <sup>1-4</sup>) should be used in citing references in the text. and placed

after the full stop. Journal names must be written in full and must be italicised. Unpublished work should not be included in the list of references.

## Examples

### Articles

1. Oparah AC, Adje DU, Enato EFO (2006). Outcomes of pharmaceutical care intervention to hypertensive patients in a Nigerian community pharmacy. *International Journal of Pharmacy Practice* 14: 115-122.
2. Dada OO, Odukoya OA, Taylor OO, Asoro I, Coker HAB, Ologun JT (2003). Toxicological Studies on Jubi Formular. A Nigerian Herbal Preparation, *West African Journal of Pharmacy* 17(1): 39-44.

### Books

1. Cole MD, Caddy B. (1995). *The Analysis of Drugs of Abuse: An instruction manual*, 2nd edn. New York: Ellis Horwood.
2. Sanders PA. (1979). Aerosol packaging of pharmaceuticals. In: Banker GS, Rhodes CT, (Eds.), *Modern Pharmaceutics*. New York: Marcel Dekker, pp. 591-626.

**Online references** should include the website and the date material was accessed:

1. Consumers' Association. Patient information: what is the prognosis? Policy report 2003. Available at: [www.whichnet/campaigns/health/patient information/index.html](http://www.whichnet/campaigns/health/patient information/index.html). Accessed December 18, 2005.

### Tables

These should be numbered with Arabic numerals. Each table should be typed using a table format (i.e., each variable must be typed into a separate cell in the table) with only horizontal lines above and below the table column headers and at the bottom of the table (using 1 pt for the top and bottom lines and ½ pt for any middle line). No vertical lines should be included in any table. Each table MUST not exceed 6.5 x 7 inches (16.5 x 17.8 cm, width x height) and MUST be inserted at the appropriate position in the text just below where it was referred to the first time. The title should be typed at the top of the table in the sentence case format, i.e., only the first name should be in capital

letters; names should also be in capital letters, as appropriate. Any legend should be typed at the top and bottom of the table in italics.

### Illustrations

Figures should be professionally drawn electronically and inserted in the appropriate position where it was first cited within the text. If photographs of patients are used, either the subjects are not identifiable or their pictures must be accompanied by a written permission to use the images. Photographs must be clear and sharp. Labels of tables MUST be in text form and MUST not form part of the image.

### Manuscript charges

Once a manuscript is accepted for publication, the author(s) will be required to pay a publication charge of USD 100.00 before the accepted paper is published. All payments must be effected immediately on receipt of letter of acceptance.

### Copyright

It is a condition of publication that authors grant the West African Postgraduate College of Pharmacists the exclusive license to publish all articles, including abstracts. Authors retain copyright of their work, which means they may re-use their work for non-commercial purposes without asking permission of the publisher. Authors are themselves responsible for obtaining permission to reproduce copyright material from other sources.

### Ethical Matters

Authors using experimental animals and human subjects in their investigation must seek approval from the appropriate Ethical Committee in accordance with "Principles of Laboratory Animal Care" (NIH publication no. 85-23, revised 1985) and/or the Declaration of Helsinki promulgated in 1964 as amended in 1996. The methods section must include a statement to prove that the investigation was approved and that informed consent was obtained.

### Galley Proofs

Unless indicated otherwise, galley proofs are sent to the address given for correspondence. It is the responsibility of the corresponding author to ensure that the galley proofs are thoroughly reviewed and returned without delay.

## CONTENT

EDITORIAL.....vii-viii

### DRUG QUALITY CONTROL AND PHARMACEUTICAL ANALYSIS

#### **A Review on drug quality surveillance in West Africa**

Olajire A. Adegoke.....1-15

#### **Quality assessment of ten brands of ofloxacin tablets marketed in Lagos, Nigeria.**

Aderonke Adepoju-Bello, Hannat Akanbi and Teddy Ehianeta.....16-25

#### **Pre-concentration technique of zinc and copper in water employing Dithizone functionalized strong anionic exchange SPE cartridges**

David Adeyemi, Solomon Ojigbo, Oluwatosin Johnson and Gloria Ayoola.....26-34

#### **Impurities profiling of brands of ceftriaxone sodium injection marketed in Ibadan, Southwest Nigeria**

Olajire A. Adegoke, Aderonke O. Korede, Adosraku R. Kwame and Cecilia I. Igwilo.....35-51

### CLINICAL PRACTICE AND PUBLIC HEALTH

#### **Detection of beta-lactamase production among Gram-negative bacteria isolated from semen of male patients with bacteriospermia**

Olumuyiwa S. Alabi and Adepeju K. Olowookere.....52-64

#### **Assessment of risk Factors for hypertension and diabetes in penultimate and final year pharmacy students in a University in South-Western Nigeria.**

Akinniyi A. Aje, Boluwatife B. Adigun and Love T. Okedele.....65-74

#### **Pattern of use of water beverage of *Hibiscus sabdariffa* Linn in a University community in Southwest Nigeria**

Segun J. Showande, Clare C. Udoh-Kalu and Titilayo O. Fakeye.....75-84

### PHARMACEUTICS AND PHARMACEUTICAL TECHNOLOGY

#### **Formulation of *Vernonia amygdalina* and *Calotropis procera* leaf extracts into a cream for the management of skin infections**

Adeola Kola-Mustapha, Yusuf Ghazali, and Titus Iranloye.....85-95

#### **Preservative efficacy of the combination of essential oils of *Cymbopogon citratus* (dc.) stapf (poaceae) and *Citrus sinensis*(l.) osbeck (rutaceae) in a cream formulation**

Uduma Eke Osonwa, Onyinye Jennifer Uwaezuoke, Chioma Ezeifeanyi, Kenneth Gerald Ngwoke, Kingsley Chukwu, Valentine Umeyor and Charles Okechukwu Esimone.....96-114

### PHARMACOLOGY AND PHARMACEUTICAL MICROBIOLOGY

#### ***In vitro* activity of defatted crude extracts of *Solanum pseudocapsicum* leaves against *Plasmodium falciparum***

Yunusa Yakubu, Timothy Bulus, Isaac .A. Agyigra and Hauwa .H. Ndayako.....115-122

#### **Antimicrobial activity of *Pseudocedrela kotschy* (Meliaceae) stem bark in traditional dental care**

Ifeoma C. Orabueze, Stephen O. Oyeboode, AbdulRahman R. Usman and Ejeatuluchukwu Obi.....123-131

<b>Antimicrobial activities of lactic acid bacteria against <i>Pseudomonas aeruginosa</i>, <i>Providencia vermicola</i>, <i>Alcaligenes faecalis</i> and methicillin resistant <i>S. aureus</i>.</b> Kayode Michael Alebiosu, Adewale Adetoye and Funmilola Abidemi Ayeni.....	132-142
<b>Effect of diclofenac and paracetamol on anticonvulsant activity of phenytoin and sodium valproate in laboratory animals</b> Jamilu Ya'u 1, Sani Malami2, Abubakar Yakubu1 and Joseph A. Anuka.....	143-149
<b>COMMUNIQUÉ.....</b>	150-151
<b>Subscription form.....</b>	152
<b>APPRECIATION TO WAJP REVIEWERS.....</b>	153-154

## EDITORIAL

The goal of the West African Journal of Pharmacy (WAJP) is to publish research findings in pharmacy practice, pharmaceutical sciences and health research through the fostering of multi-disciplinary research and collaboration among pharmaceutical scientists, practicing pharmacists, pharmaceutical industries and the healthcare sector.

In this current issue, **ADEGOKE** writes a review on drug quality surveillance in West Africa, showing that efforts have been intensified in very recent years to improve on the quality of medicines in circulation within West Africa. However, a lot still needs to be done on the part of government, professionals, manufacturers, distributors and other stakeholders in order to have drugs that are safe and effective.

**ORABUEZE et al**, in a research work of public health interest justified the traditional use of chewing stick, *Pseudocedrela kotschyi* (Meliaceae) as an alternative in management of dental infections caused by *Staphylococcus aureus*, *Streptococcus sp.*, *Lactobacillus sp.*, and *Actinomyces sp.*

**ADEPOJU-BELLO et al** assessed the quality of ten brands of ofloxacin tablets marketed in Lagos, Nigeria. Quantitative assay revealed that two brands (OFLO-2 and OFLO-7) contained less than 90% of labeled ofloxacin content and concluded that chemical equivalence does not indicate bioequivalence.

**ADEYEMI et al** evaluated the efficiency of dithizone functionalized strong anionic exchange pre-packed SPE cartridges for pre-concentration of Zn and Cu in water samples. The technique of functionalization with dithizone resulted in improved recoveries for Cu (31.60%) and Zn (29.00%) at optimized conditions of pH 7.4, sample volume, 100 ml, while the eluent volume (HCl) was 20 mL.

**ALABI and OLOWOOKERE** in another research work of public health interest detected beta-lactamase production in *Escherichia coli*, *Klebsiella spp.*, *Pseudomonas spp.*, *Enterobacter spp.* and *Proteus spp* isolated from semen of male patients with bacteriospermia. Resistance to amoxicillin, amoxicillin-clavulanate, cefepime, ceftriaxone, cefotaxime, ceftazidime and cefuroxime was observed in 87.5%, 62.5%, 45.8%, 41.7%, 37.5%, 37.5% and 27.1% of the isolates respectively. Thus, the high level of MDR bacteria calls for caution in the antibiotic treatment of bacteriospermia.

**OSONWA et al** through their research findings demonstrated the stability and preservative efficacy of essential oils of *C. citratus* and *C. sinensis*. The authors recommended their use as adjuvants in creams for topical application as probable antimicrobial agent to minimize microbial contamination caused by organisms in multidose cream formulations.

**SHOWANDE et al** explored the use of water beverage of *Hibiscus sabdariffa* for the management of acute and chronic diseases among staff and students of the University of Ibadan. Findings also showed that co-administration with drugs used for treating chronic diseases may predispose patients to adverse effects.

**YAKUBU et al** reported that methanol and dichloromethane extracts of *S. pseudocapsicum* produced good antiplasmodial effect. The methanol fraction showed the lowest IC<sub>50</sub> value of 6.31µg/ml, while the dichloromethane fraction is 22.39µg/ml. They showed that the methanol extract has a high antimalarial activity and that this is a potential source for the discovery of an antimalarial agent.

**ADEGOKE et al** developed a method for separation of ceftriaxone and its 5 major impurities in less than 15 minutes using a gradient elution of KH<sub>2</sub>PO<sub>4</sub> (pH 7.5) and methanol at a flow rate of 1mL/min. All the brands studied complied with the content BP specification of 92-108% of ceftriaxone. However, the impurities content in all the 13 brands were far higher than the 0.2% specified by ICH for the dose of the drug.

**AJE et al** carried out risk factor assessment for diabetes and hypertension among undergraduate students. They documented that some risks exist among the undergraduate students and that there is a need for targeted public health campaigns among students.

**KOLA-MUSTAPHA** *et al* formulated the methanol extracts from *Vernonia amygdalina* and *Calotropis procera* into a topical cream for the treatment and management of skin infections. Findings of the antimicrobial assay of the formulated cream confirmed antimicrobial activities.

**ALEBIOSU** *et al*, used co-culture method to demonstrate the antagonistic activities of lactic acid bacteria against *Pseudomonas aeruginosa*, *Providencia vermicola*, *Alcaligenes faecalis* and methicillin resistant *S. aureus*. The findings affirmed the potential of lactic acid bacteria as alternative treatment option in cases of antimicrobial resistance to the studied pathogens.

**YA'U** *et al* in a short communication showed that co-administration of diclofenac/paracetamol with phenytoin may be beneficial in generalized tonic-clonic/partial epilepsy.

Also in this edition, you will find the communiqué of the 28<sup>th</sup> & 29<sup>th</sup> annual general meeting & scientific symposium of the West African Postgraduate College of Pharmacists (WAPCP) held at the Paynesville city hall and Golden Gate hotel, Paynesville, Republic of Liberia, which held from 19<sup>th</sup> march – 22<sup>nd</sup> march, 2017.

**Olufunsho Awodele**, MPH, Ph.D, FPCPharm  
Editor-In-Chief