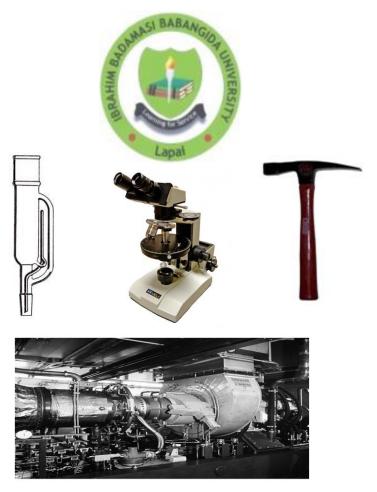
Development Journal of Science and Technology Research (DJOSTER)

Volume 11, Number 1, 2022 ISSN: 2143-3275



A Publication of the
Directorate of Research and Development
Jointly with the
Faculty of Applied Sciences and Technology,
Ibrahim Badamasi Babangida University,
Lapai, Niger State, Nigeria

AUGUST 2022

Development Journal of Science and Technology Research (DJOSTER)

Development Journal of Science and Technology Research (DJOSTER) is a multi-disciplinary journal managed jointly by the Directorate of Research and Development (DiReD) and the Faculty of Applied Sciences and Technology, Ibrahim Badamasi Babangida University, Lapai, Nigeria; devoted to publications of innovative research works and contributions to knowledge in all the areas of science and technology, encompassing natural sciences, applied sciences, engineering sciences, agricultural sciences and science education. Although it is a joint publication of DiReD and the Faculty of Applied Sciences and Technology, the editorial and advisory management board members are drawn from all other related faculties and research centres within and outside the Ibrahim Badamasi Babangida University.

Editorial Board

SN	Name	Address	Designation
1	Prof. Nuhu Obaje	Centre for Applied Sciences and Technology	Editor-in-Chief and
		Research, IBB University, Lapai. Email:	Chairman, Editorial
		nobaje@yahoo.com	Board
2	Prof. Niranjan Kumar	Department of Crop Production, Faculty of	Managing Editor
		Agriculture, IBB University, Lapai	
3	Prof. Dalhatu Sangari	Department of Geography, Nasarawa State	Member
		University, Keffi	
4	Prof. Amanabo Musa	Department of Biochemistry, Faculty of Natural	Member
		Sciences, IBB University, Lapai	
5	Prof. Paul Mamza	Department of Chemistry,	Member
		Ahmadu Bello University, Zaria	
6	Assoc. Prof. Muideen	Department of Physics, IBB University, Lapai	Member
	Oladipupo		
7	Prof. Musa Bawa	Department of Mathematics and Computer	Member
		Science, IBB University, Lapai	
8	Dr Babangida Jibril	Department of Geology and Mining, IBB	Member
		University, Lapai	
9	Assoc. Prof. Samuel	Department of Geography, IBB University, Lapai	Member
	Ibrahim		

Editorial Advisory Board

	Editorial Advisory Board				
SN	Name	Address			
1	Prof. Abu Kasim Adamu	Vice Chancellor, Ibrahim Badamasi Babangida University, Lapai			
1	Prof. Idowu Olayinka	Former Vice-Chancellor, University of Ibadan, Ibadan			
2	Prof. Dennis Balogu	Dean, Faculty of Applied Sciences and Technology, IBB University, Lapai			
3	Prof. Matthias Hinderer	Geology-Paleontology Institute, Technical University, Darmstadt, Germany			
4	Prof. Sonny Jonah	Centre for Energy Research and Training, Ahmadu Bello University, Zaria			
5	Prof. Idris Isa Funtua	Former Vice-Chancellor, Umar Musa Yar'adua University, Katsina			
6	Prof. Sunday Atawodi, FAS	Department of Biochemistry, Federal University, Lokoja			
7	Prof. Ibrahim Z. Yusuf	Department of Microbiology, Abubakar Tafawa Balewa University, Bauchi			
8	Prof. Muideen Oyebode	Department of Agricultural Engineering, Ahmadu Bello University, Zaria			

Submission of manuscripts

Original research papers, discussion papers, short reports, review papers, and rapid communications are welcomed. Articles are to be submitted electronically by email to: nobaje@yahoo.com; nobaje@ibbu.edu.ng.

Two issues of one volume are published annually, usually Volume X, No 1 in May/June and Volume X, No. 2 in November/December.

Fees chargeable

A combined manuscript processing and publication fee of **N22,000** is charged and must be paid at the point of acknowledgement of manuscript submission. These charges are subject to changes from time to time depending on prevailing printing and publishing offset costs.

Submission declaration and verification

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright holder.

Article review

Submitted manuscripts shall be reviewed by three reviewers to be chosen on the advice of the Editorial Board. Authors, however, can fast-track the review process by submitting a maximum of four names of potential reviewers. Such submissions or nominations by the authors are not binding on the Editorial Board.

Article structure

Papers should be written in the most concise form. Occasionally long papers are accepted, particularly those of a review nature. Short reports and rapid communications are encouraged.

Heading/Title of paper

The title of the paper should be written in upper case (capital) letters, bold (as in "a" below), except where it includes a botanical or zoological taxonomic nomenclature which should be in lower case italicised (see "b"). Examples:

- a) GEOPHYSICAL AEROMAGNETIC EVALUATION OF THE CRETACEOUS BIDA BASIN IN NORTH-CENTRAL NIGERIA
- b) STRATIGRAPHIC IMPLICATIONS OF A NEW SPECIES OF FORAMINIFERA Globigerinoides nigeriaensis IN THE BENUE TROUGH OF NIGERIA

Subdivision - numbered sections

Articles should be divided into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Any subsection may be given a brief heading. Each heading should appear on its own separate line. Headings of all sections and subsections shall be in lower case letters but should be differentiated in hierarchical order. Example:

1. Introduction of Subject

- 1.1. Physical Parameters
- 1.1.1. Swelling index

In addition to any other matter that may be subject-specific, all articles should be structured in the following format: Abstract; 1. Introduction; 2. Literature Review / Previous Work / General Review; 3. Methods of Study; 4. Results and Discussion; 5. Conclusions; Acknowledgements; References. Provision of keywords is optional.

Author names and affiliations: Author names should be written with **surname last** (e.g. Nuhu G. Obaje or Nuhu George Obaje) or initials followed by surname (e.g. N. G. Obaje). Present authors' affiliation addresses should be written below the names. Indicate all affiliations with lower-case letters immediately after the author's name. Provide the full postal address of each affiliation.

Corresponding author: Clearly indicate who will handle correspondence at all stages of reviewing and publication, also post-publication. Email address and the telephone no(s) of the corresponding author should be stated.

Figure and Table captions

Ensure that each illustration has a caption in lower case letters, bold. Supply captions separately, not attached to the figure. A caption should comprise a brief title (**not** on the figure itself) and a description of the illustration. However, captions in editable formats (power points, word documents) can be labelled on the figure at the bottom; but ensure that the Editorial Office can edit these to ensure uniformity to font size and characters.

References

Citation in text

Please ensure that every reference cited in the text is listed in the reference list (and vice versa). Unpublished results and personal communications are not recommended in the reference list but may be mentioned in the text. If these references are included in the reference list, they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Reference style

Text: All citations in the text should refer to:

- 1. Single author: the author's name (without initials, unless there is ambiguity) and the year of publication; E.g. (Obaje, 1994) or according to Obaje (1994)
- 2. Two authors: both authors' names and the year of publication; E.g. (Obaje and Hamza, 2000) or according to Obaje and Hamza (2000)
- 3. *Three or more authors:* first author's name followed by "et al." and the year of publication. E.g. (Obaje et al., 2011) or according to Obaje et al. (2011).

List: There is no particularly adopted reference listing style, but for every paper, the reference listing must conform to a uniform style and format such that if parentheses are used, they must be used throughout and if not used, so shall be for all the listed references.

References, however, should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication.

Examples of preferred reference style:

Reference to a journal publication:

Vandebrucke, J., Hanraads, J.A.J., Lupton, R.A., 2000. The art of writing a scientific article. Journal of Scientific Communication 163, 51-59.

Reference to a book:

Shrank., W., White, E.B., 1979. The Elements of Style, third ed. Macmillan, New York, 350pp.

Reference to a chapter in an edited book:

Mettam, G.R., Adams, L.B., 1999. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), Introduction to the Electronic Age. Willey and Sons, New York, p281-304.

Offprints

The corresponding author shall be supplied with one complete volume of the booklet containing all the publications in that volume and in which the author(s) paper appeared. Request for additional copies of the article or the volume containing the article shall be at a surcharge (presently N2,000 per additional copy).

Editor-in-Chief Prof. N. G. Obaje

hecher Olgan

NNPC Chair Professor and Coordinating Director, Directorate of Research and Development (DiReD), IBB University Lapai, Niger State, Nigeria

nobaje@yahoo.com; nobaje@ibbu.edu.ng 08035925210, 08151800365

CONTENT: VOLUME 11, NUMBER 1, 2022	
1. A REVIEW OF QUALITY PRACTICES IN DEVELOPING AND IMPROVING FUNCTIONAL CEREAL-BASED NON-ALCOHOLIC BEVERAGES	
S.I. Kolo and J. C. Anounye	7
2. QUALITY EVALUATION OF SHEA PULP JUICE; PRODUCTION, PROXIMATE A	ND
S.I. Kolo, N. J. Dadi Mamud, M. Aliyu Paiko, B. Jubril	11
3. A MATHEMATICAL ANALYSIS FOR THE CONTROL OF CHOLERA DYNAMIC POPULATION	IN A
Fatima Sulayman, Aliyu Alhaji Ishaku Ma'ali and Abubakar Abdulkadir	22
4. MIGRATION OF PARAQUAT DICHLORIDE THROUGH A SANDY-LOAM SOIL N.S. Onyekaba, A.P. Uzoije, C.E. Ihejirika and G.O. Nevoh	32
5. GEOLOGICAL AND GEOCHEMICAL CHARACTERIZATION OF LIMESTONE A MARBLE DEPOSITS FOR INDUSTRIAL APPLICATION IN PARTS OF NORTH- CENTRAL AND NORTH-WESTERN NIGERIA	.ND
I . Yusuf, N.G. Obaje, S.O. Idakwo, A. A. Sidi	47
6. MATHEMATICA PROGRAMMING FOR SIMULATION OF AN SVIR DETERMINISTIC DISEASE TRANSMISSION MODEL	
Aisha Aliyu Yakubu	57
7. WEB-BASED HOSPITAL MANAGEMENT INFORMATION SYSTEM A CASE STU OF IBRAHIM BADAMASI BABANGIDA UNIVERSITY HEALTH CARE CENTRE, LA NIGER STATE	
U. S. Aliyu, J. Elijah, Abdulrahaman Muhammad Vatsa, A. Haruna,	<i>c</i> 1
B. Y. Sarki, Adamu A. Isah	61
8. SOME INDUSTRIAL MINERAL DEPOSITS IN NIGER STATE OF NIGERIA AND 'INDUSTRIAL APPLICATIONS	ГНЕ
N.G. Obaje, S. A. Ilmar, H. D. Ibrahim, V. T. Ilsman	71