Applied Sciences Undergraduate Research Sessions 2023 - ASURS 2023

Faculty of Applied Sciences

Rajarata University of Sri Lanka

Guidelines for Authors

Authors are required to submit an abstract that conforms with the following guidelines.

To be considered for inclusion in the sessions, abstracts must be submitted on or before 30 March 2023 to the email address given at the end of this document and must strictly adhere to the guidelines.

GUIDELINES FOR PREPARATION OF ABSTRACTS:

All abstracts must be written in English and submitted as a MS Word file in MS Word 97–2003 formats (file extension .doc, .docx). Please see the sample abstracts at the bottom of the page for clarification. Use the abstract template and overtype within the angle brackets.

Format:

- Word limit: 250–350 words
- Font style: Times New Roman
- Line spacing: Single

The submission should contain the following:

TITLE:

Title should be brief and reflect the nature of the study. Should be **capitalized**, **written in 12pt bold font** and **centre aligned.** There should be no line spaces above the title. Leave a single line space in between the title and the affiliations. Scientific names should be italicized.

NAME/S OF AUTHOR/S:

Name(s) of the author(s) should be written in **11pt bold font** and **centre aligned**. Initials (each initial should be followed by a full-stop and a space) should be followed by the surname/last name. Presenter's name should be underlined, and the corresponding author's name should be indicated by an asterisk at the end. Email of the corresponding author should be provided for future communications and should be placed below the affiliations without any spacing. A single line space should be left between the name(s) and affiliation(s).

AFFILIATION/S OF AUTHOR/S:

Institutional affiliation(s) of author(s) should be written in **11pt italic font** and **centre aligned**. Where the work has been carried out in several institutes / departments, indicate all affiliations with a superscript number immediately after the author's name and in front of the appropriate address. A single line space should be left between affiliations and the body of the text.

TEXT:

Text should be in **11pt font** and **justified** and should include a concise description of the **introduction, materials and methods, results, discussion, and conclusions.** A single line space should be left between the body of the text and the keywords.

KEYWORDS:

Keywords should be in **11pt italic font** and **left justified.** A single line space should be left between the body of the keywords and the acknowledgement.

ACKNOWLEDGEMENT:

Acknowledgement Should be in **11pt italic font** and **left justified.** If possible, limit to a single sentence. Grant number(s) should be included within a parentheses. A single-line space should be left between the body of the acknowledgement and the corresponding author's email address.

Spelling and Grammar:

British English should be used throughout the text. Content of the abstract should be carefully proofread to avoid any typographical, spelling and grammatical errors.

Abbreviations:

Except for standard abbreviations, all abbreviations should be defined when first used.

Non-English and Technical Terms:

Should be in *italics.*

Units:

International System of Units (SI) should be used, and a space must be left between the figure and the unit (eg. 25 cm).

Plagiarism:

Standard plagiarism policy is applicable to all submissions.

(https://publicationethics.org/resources/code-conduct)

Important Dates:

- Abstract Submission 30 March 2023
- Camera Ready Abstract Submission 20 April 2023
- Symposium 03 May 2023

Tracks:

- Biology
- Chemistry
- Computing
- Health Promotion
- Mathematics
- Physics

Abstract Submission: Email your abstract to asurs@as.rjt.ac.lk on or before the 30 March 2023. Specify the 'title' and 'track' of your abstract in the email subject. e.g. <TITLE> <TRACK>

Sample 1 (single institute)

ABSTRACT TITLE
(CAPITALIZED, Times New Roman, font size 12pt, **bold**, single space)

Jinadasa K. L.[*], **De Silva A. B.**
(Times New Roman, font size 11pt, centred, **bold**, single spaced)
(one line space from the abstract title)

Department/Faculty, Institution, City, Country
**jinadasa@uni.ac.lk*
(Times New Roman, font size 11pt, *Italics*, centred, single spaced)
(one line space from the authors)

[Abstract body]

(Write your abstract here)
(Times New Roman, font size 11pt, justified, 250-350 words)
(One line space from the authors' affiliation and full address)

Keywords: Please include up to 05 words
(Times New Roman, font size 11pt, *Italics*, Left justified)
(One line space from the abstract)

Acknowledgement: If available write down in a single sentence. Grant number(s) should be included in a parenthesis.
(Times New Roman, font size 11pt, Left justified)
(One line space from the Keywords)

Sample 2 (multiple institutes)

ABSTRACT TITLE
(CAPITALIZED, Times New Roman, font size 12pt, **bold**, single space)

Jinadasa K. L.[1*], **De Silva A. B.**[2]
(Times New Roman, font size 11pt, centred, **bold**, single spaced)
(one line space from the abstract title)

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(Times New Roman, font size 11pt, *Italics*, centred, single spaced)
(one line space from the authors)

[Abstract body]

(Write your abstract here)
(Times New Roman, font size 11pt, justified, 250-350 words)
(One line space from the authors' affiliation and full address)

Keywords: Please include up to 05 words
(Times New Roman, font size 11pt, *Italics*, Left justified)
(One line space from the abstract)

Acknowledgement: If available write down in a single sentence. Grant number(s) should be included in a parenthesis.
(Times New Roman, font size 11pt, Left justified)
(One line space from the Keywords)

FUNCTIONALIZED NANOCELLULOSE FOR THE ADSORPTION OF ARSENIC(III) FROM WASTE WATER

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The trivalent arsenite (As^{3+}) exerts severe effect on health and the environment, being highly toxic about sixty times greater than the pentavalent arsenate (As^{5+}) hence gaining global attention nowadays. The present study explored the capacity of removing As^{3+} in water with the use of sulfonated, phosphorylated and xanthated nanocellulose (NC). Cellulose, the world's most abundant, environmentally friendly, biocompatible material was extracted from an invasive plant in Sri Lanka, *Panicum maximum* via alkaline treatment followed by the bleaching with NaOCl. Acid hydrolysis was conducted separately with 50% sulfuric acid, 85% phosphoric acid and 21.9 % hydrochloric acid to obtain sulfonated, phosphorylated and non-functionalized nanocellulose (NC) respectively. Non-functionalized NC was converted to xanthated NC with NaOH and CS_2. The adsorption of As^{3+} in water was observed by fabricating each filter paper with 50 mg of functionalized NC and allowed to get filtered through. The As^{3+} concentrations were determined by the formed I_2 from I^-, as a result of initial oxidation of As^{3+} into As^{5+} followed by the reaction with KIO_3 in the presence of H^+ in the medium. The color intensity was measured with UV-Vis spectroscopy. Among the functionalized NC, the sulfonated NC has performed well in 200 ppm,150 ppm and 100 ppm As^{3+} concentrations with removal efficiencies of 46.8, 38.4 and 50.1 whereas the phosphorylated NC has dominated in 50 ppm concentration with 47.8 of removal efficiency, per 50 mg loading of functionalized NC. The work can be further developed for making bio-degradable and affordable columns for removing As^{3+} from water. Dynamic Light Scattering results showed that the particle sizes of NC were in the nanoscale range giving values of 295.7 nm, 271.4 nm and 320.9 nm for sulfonated, phosphorylated and non-functionalized NC respectively.

Keywords: *Arsenite, Functionalized Nanocellulose, Adsorption, Heptane, UV-Vis spectroscopy*

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