

CURRICULUM VITAE



ZEINAB ABDELRAHIM OSMAN

Principal investigator in Wood and Fiber based Composites.

General Information

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LANGUGES: ARABIC: Mother tongue
ENGLISH: Fluent
FRENCH: Fluent

Current Position

- *Director General, National Center for Research, November, 2019 to Date.*
- *Principal investigator in composite materials, Department of Materials Sciences, 2006 to present.*
- *Head, Forest products research consortium, FPRC*

Scientific Titles

- *Professor, 2015*
- Associate Research Professor since 2008.

- Assistant Research Professor 2003 to 2008.
- Researcher 1996 to 2003.
- Research Assistant 1994 to 1996.

Education

- Post-doctoral Studies in polymers science, Polymers Research Group, School of Chemistry, Wits University, South Africa. 2003 to 2006.
- PhD. in Science and Industrial Technologies, Department of Chemistry, National School of Timber Sciences (ENSTIB) University of Nancy 1, France, 2000 to 2003.
- M.Sc., in Forest Industries, Faculty of Forestry, University of Khartoum, 1996.
- B.Sc. in Forestry, Department of Forestry, Faculty of Agriculture University of Khartoum, 1992.

Employment History

- Director, Institute of Engineering Research and Materials Technology, National Center for Research, January to November 2019
- Head, Division of international relations, NCR from 2016 to 2018
- Director, Institute of Engineering Research and Materials Technology, National Center for Research, May, 2010 to March, 2016.
- Director, Institute of Technological Research, National Center for Research, 2010 to 2013.
- Head Department, Cellulose Chemistry and Chemical Technology, November, 2009 - May, 2010.
- Lecturing professor, Department of chemical engineering, Faculty of engineering from 2008 to date.
- Project Leader, Wood Science and Technology, Department of Cellulose Chemistry and Chemical Technology, Institute of Technological Research, 2006 to present.
- Senior Researcher and Lab manager, School of Chemistry, Wits University, South Africa 2003 - 2006.
- Head, Department of Cellulose Chemistry and Technology, Institute of Technological Research, National Center for Research, April - August, 2003.
- Researcher, Institute for Technological Research, National Center for Research, 1996 -2000.

- Research assistant, Institute for Technological Research, National Center for Research, 1994-1996.
- Part-time teaching assistant, Department of Forest products and Industries, Faculty of Forestry, University of Khartoum, 1992 -1994.

Research Interest

The main area of my research work to date has been the wood/fiber based composite. My interests focus on producing 100% green composites (biocomposites). Therefore part of my research work encompasses formulation of natural adhesives such as tannins, to be used as natural matrices in the manufacturing of biocomposites and understanding the interrelationship between the panels' properties and process parameters in order to develop models that can be used to predict these relationships.

One approach that I chose to improve the overall properties of the produced panels is to study the thermal properties of the individual component and their chemical interaction; fibers and the matrices. Therefore my work has encompassed 3 areas related to composites: 1) cost effective pretreatment of fibers. 2) their thermal behavior, 3) their interaction with the matrices. Much of my research work is collaborative in nature, being conducted with different national and international research group of scientists. My role in these collaborative projects typically relies on my expertise in the area of pretreatment of fibers and formulation of natural polymers and the chemical interaction of these materials during their processing.

My research work is also including the interaction of the fibers and the thermoplastic matrices in order to cope with the needs of the global market in producing thermoplastic biodegradable composites. Collaborative work with Institute of bioplastics and biocomposites, Germany has been started in March, 2015.

FaLab to produce prosthetic material in collaboration with NAPO is being currently being established.

Awards/Scholarships and Research Fund

- The price of innovation, UNESCO chair for women in Science and Technology 2021

Teaching:

- Lecturer, Faculty of Engineering & Architecture, National University Sudan; Courses; Engineering Chemistry, Materials sciences (for civil Electrical and electronics) and Research Methods, teaching language: English, 2016 to date.

- Lecturer, Dept. Chemical Engineering, Faculty of Engineering, University of Science and Technology; Courses; physical chemistry and organic chemistry, teaching language: English, 2008 to 2016

International Conferences and Workshops

- Z. Osman, Endres H. Josef and Shamshuwyyva, M E. valuation of Mechanical and Physical Properties of Particleboard made from pH modified Fibers, PF, PUF and PMDI Adhesives a paper orally presented in International Conference on Innovative Natural Fibers Composites for Industrial Applications, University of Rome, La Sapienza, Rome 4 – 7 October, 2017.
- Research proposal writing; paper presented in International Conference on Health Research, , Hanover University of applied science and arts, Germany, 7-9/06/2016
- Osman. Z. Development of tannins - based adhesives and their applications in the biocomposites. Presented in International Union of Forestry Research Organization Congress (IUFRO Congress) Salt Lake City, Utah, USA, October 2014.
- Osman, Z., M. Elbadawi, Bledzki, A. K. and Franciszczak P. Mechanical properties of thermoplastic composites made from water retted kenaf fibers reinforced with polypropylene, Presented in 21st International Conference on composites and Engineering, ICCE, Tenerife, canary Island, 21-27/07/2013.
- Z. Osman. Bioadhesives from Tannins; Methods of extraction, preparations and evaluation. Key note speaker, INTROP Research Colloquium, Putra University, Malaysia, 5-6, December , 2012.
- Z. Osman. Comparative thermomechanical study on the contribution of the autocondensation to the copolymerization reactions of tannins of the subspecies of *Acacia nilotica*. Presented in the International Conference on Biobased Polymers and Composites, Siofok, Hungary, May 20 - 31/2012.
- Z. Osman and A. Pizzi. Thermomechanical analysis as a rapid tool for the evaluation of the tannin of *Acacia nilotica* subspecies *nilotica* as wood adhesives. Presented in 2nd Internal Conference on Recent Advances in Composites Materials, Limoges, France December 13-15, 2010.
- Z. Osman, A. Pizzi and I. H. Alamin. Comparative properties of agrofiber particleboard using newly developed bonding materials. Presented in 2nd International Conference on Innovative Natural Fibers Composites for Industrial Applications, University of Rome, La Sapienza, Rome 15 – 18 April, 2009.

Lecturing/ Teaching and Invited talks

- Intercultural relations .ISP, Hannover University of applied Sciences and Arts, Germany 2019.
- Project management cyle.ISP, Hannover University of applied Sciences and Arts, Germany 2017
- Research Proposal writing.ISP, Hannover University of applied Sciences and Arts, Germany 2016.
- Empowering women can drive innovation: A view from Sudan, Science for Development Seminar, 23 September 2016. United Nations General Assembly (UNGA71)
- IP and Research Institutions, workshop organized by the Deanship of scientific affairs, Sudan University for Science and Technology. Title of presentation; Patent drafting strategy, Corinthia Hotel, 20./01/2015.

Supervision

3PhD students

5 masters

External Examination

- Faculty of Forestry, University of Khartoum, 2020
- Faculty of Environment and Natural resources,Gezira University.2018
- Faculty of Engineering and the Built Environment , University of Wits, SA.2021
- Faculty of Engineering and the Built Environment, Tshwane University of Technology, 2017
- Faculty of Science, University of Johannesburg, 2016

Reviewer's Activities

- Editorial board - Journal of Forest Products and Industries-
<http://www.researchpub.org/journal/jfpi/jfpi.html> , Ref. No.: JFPI-2012-002.
- J. of Bioresources (publishers; North Carolina State University, USA).
- J. Thermal Analysis and Calorimetry (Publishers; Springer)
- International Journal of Biological Macromolecules (Publishers; Elsevier)

- J. Composites part B; Engineering (publishers; Elsevier)
- African Journal of Microbiology (Subject was on Tannins).
- African Journal of Chemistry (Subject was on Tannins).
- J. Science and Engineering of Composite Materials (publishers: Degruyter, Berlin, Germany).

- National Research Foundation (NRF), South Africa (3 projects)
- Medical Research Council (MRC) South Africa (1 project)