

PROMOTION RECOMMENDATION
The University of Michigan-Dearborn
College of Arts, Sciences, and Letters
Department of Natural Sciences

Sonia Maraya Tiquia-Arashiro, associate professor of biology and microbiology, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters, is recommended for promotion to professor of biology and microbiology, with tenure, Department of Natural Sciences, College of Arts, Sciences, and Letters.

Academic Degrees:

Ph.D. 1997 The University of Hong Kong, Hong Kong (Environmental Microbiology)
B.S. 1991 Plant Pathology (*cum laude*), Central Luzon State University, Philippines

Professional Record:

2008 – Present Associate Professor of Biology and Microbiology, Department of Natural Sciences, University of Michigan-Dearborn, Dearborn, MI
2003 – 2008 Assistant Professor of Biology and Microbiology, Department of Natural Sciences, University of Michigan-Dearborn, Dearborn, MI
2001 – 2003 Research Staff, Microbial Genomics and Ecology Group, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN
1999 – 2001 Research Scientist, Department of Food, Agriculture and Biological Engineering, The Ohio State University, Columbus, OH

Summary of Evaluation:

Teaching: Professor Tiquia-Arashiro's teaching is rated excellent. Since her promotion to associate professor, she has been a mainstay in the microbiology program teaching the full range of upper-level classes, including Microbiology, Applied and Environmental Microbiology, Microbial Genetics, and Microbial Physiology. In addition, she continues to participate in Introduction to Cellular and Molecular Biology. In support of the bioengineering major in the College of Engineering and Computer Science, she developed a new course (with Professor J. Thomas) entitled Biotechnology and Bioprocessing. Professor Tiquia-Arashiro continually updates her courses to enhance teaching and learning. She has made special efforts to introduce new instructional technologies like podcasting and on-line tutorials to make more effective use of class and laboratory time and to improve student understanding of difficult concepts and/or complex instrumental techniques. Her use of the Socratic method to facilitate critical thinking in her classes has proven effective in helping them meet course and curriculum learning outcomes. Professor Tiquia-Arashiro is a strong proponent of the teacher-scholar model, having mentored more than 30 undergraduate students in independent study activities based in her laboratory. Since 2008, she has attended nearly a dozen professional workshops designed to enhance teaching and learning.

Research: Professor Tiquia-Arashiro's research is rated excellent. Her research focuses on three main areas: (1) Microbial community dynamics and diversity in natural environments; (2) Applications of molecular tools in contaminant remediation; and (3) Waste processing biology and microbiology. Since her promotion to associate professor, Professor Tiquia-Arashiro has published seven articles in highly regarded peer-reviewed journals and two book chapters. She has given 55 professional presentations, and has received more than \$100,000 in grants, most from external sources like the U.S. Department of Energy and the Hong Kong Research Grants Council. She has served as the lead editor for a two-part special issue in *Environmental Technology* on

“Extremophiles,” and was the editor of a new book entitled Molecular Biological Techniques for Ocean Sensing. Her research laboratory has provided support for three M.S. in environmental science degree students and 32 undergraduate students, yielding a total of 51 presentations at regional, national, and international meetings. Professor Tiquia-Arashiro received the University of Michigan-Dearborn Distinguished Research Award in 2010, and the Achievement Award in Science and Technology from Central Luzon State University in 2011.

Recent and Significant Publications:

Tiquia-Arashiro, S.M. (2012). Molecular biological technologies for ocean sensing. Springer Publishing: New York, 295 pp. ISBN 978-1-61779-914-3.

McKindles*, K. and Tiquia-Arashiro, S.M. (2012) Functional gene arrays for analysis of microbial communities on ocean platform. In: Molecular Biological Technologies for Ocean Sensing. Tiquia-Arashiro, S.M. (ed). Springer Publishing: New York, pp. 169-201.

Cho, K.*, Zholi, A.*, Frabutt, D.*, Flood, M.*, Floyd, D.* and Tiquia, SM (2012) Linking bacterial diversity and geochemistry of uranium-contaminated groundwater. *Environmental Technology*. In press.

Tiquia, S.M. (2011) Extracellular hydrolytic enzyme activities of the heterotrophic microbial communities of the Rouge River: An approach to evaluate ecosystem response to urbanization. *Microbial Ecology* 62: 679-689.

Tiquia, S.M. and Mormile, M. (Eds), (2010). Extremophiles: A source of innovation for industrial and environmental applications. Part 1. Bioprospecting and recent advances on the industrial and environmental uses of extremophiles. *Environmental Technology Special Edition*. Volume 31 (8-9). Taylor and Francis, Oxfordshire, U.K. pp. 823-1060.

Tiquia, S.M. and Mormile, M. (Eds), (2010). Extremophiles: A source of innovation for industrial and environmental applications. Part 2. Novel enzymes and industrial compounds from extremophiles. *Environmental Technology Special Edition*. Volume 31 (10). Taylor and Francis, Oxfordshire, U.K. pp. 1061-1181.

*undergraduate student authors

Service: Professor Tiquia-Arashiro’s service is rated excellent. She chaired the Microbiology Program from 2008 to 2011, and, since 2011, has been the director of Master of Science in Environmental Science Program. She has participated on numerous faculty search committees, including one in CECS for a bioengineering hire. During the 2008-09 academic year, Professor Tiquia-Arashiro was elected to serve as the programs representative to the department Executive Committee, and in 2011, she was a member of the CASL Academic Standards Committee. Her collegiality and insightful contributions have been highly valued by the members of these committees. She has provided careful advisement to more than 210 biology and microbiology majors since 2008. Professor Tiquia-Arashiro serves her profession as regional editor for *Environmental Technology*, as well as a member of the editorial board of the *Journal of Bioprocessing and Biotechnology*. She has been an external reviewer for several grant agencies, including the National Science Foundation, and she has regularly served as a peer-reviewer for more than a dozen professional journals, including tier-one publications like *Applied and Environmental Microbiology*, *Chemosphere*, and *Environmental Technology*.

External Reviewers:

Reviewer A: “Dr. Tiquia-Arashiro’s papers are well-cited and appear for the most part in good quality peer-reviewed journals. Her h# of 22 is very respectable and several of her publications are in highly ranked journals like *Applied and Environmental Microbiology*. ... [Dr. Tiquia-Arashiro] is

to be commended for producing a strong body of scholarly work in addition to her teaching that would be recognized and rewarded at my research-intensive institution.”

Reviewer B: “The quality of Dr. Tiquia-Arashiro’s scholarly contribution is high. She has established a vigorous research program and has a sustained publication record in good journals in her field of environmental microbiology and science. She has established a very good suite of collaborations, and I have no doubts that her scholarship will continue at this high level.”

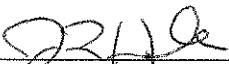
Reviewer C: “Dr. Tiquia-Arashiro’s passion in science is just as strong as it is in education. Her peer-reviewed publications all appeared in respectable journals. And the fact that many of them are one-author papers leads me to believe that she has done a great deal of bench work herself and the majority of the writing. Dr. Tiquia-Arashiro also edited a book on *Molecular Biological Technologies for Ocean Sensing* that has just been released. This kind of book is valuable to and welcomed by environmental microbiologists. ... [It] fills a needed niche.”

Reviewer D: “I am impressed with the number and quality of Dr. Tiquia’s published work. ... Her publications are frequently cited, some of them more than 100 times. Thus, her work has clearly impacted her research field of environmental microbiology. ... I would rate Dr. Tiquia’s standing at the top of her peer group in the same field.”


Reviewer E: “Particularly impressive is the number (64 total; 30 since Fall 2008) of undergraduate student research projects supervised by Dr. Tiquia-Arashiro. To me, this is the epitome of the teacher-scholar model where students engage in real scholarly experience, informed by the research interests and expertise of their faculty mentor. Her publication record since 2008 shows a strong continuation of her previous high levels of achievement.”

Summary of Recommendation:

Professor Tiquia-Arashiro has demonstrated excellence in her teaching and research, and has rendered valuable service to the Department of Natural Sciences, to the campus, and to her profession. We are very pleased to recommend, with the strong support of the Executive Committee of the College of Arts, Sciences, and Letters, that Sonia Maraya Tiquia-Arashiro for promotion to professor of biology and microbiology, with tenure, in the Department of Natural Sciences, College of Arts, Sciences, and Letters.



Jerold L. Hale
Dean
College of Arts, Sciences, and Letters



Daniel Little
Chancellor
University of Michigan-Dearborn

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