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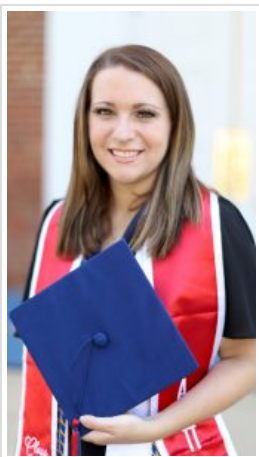
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Honors College Alumna Wins National Portz Scholarship

Genevieve Verville's research could improve development, effectiveness of new drugs

AUGUST 20, 2020 BY EDWIN B. SMITH

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Genevieve Verville

OXFORD, Miss. – A recent graduate of the **Sally McDonnell Barksdale Honors College** at the **University of Mississippi** has been awarded a prestigious scholarship from the National Collegiate Honors Council.

Genevieve Verville, a May 2020 **chemistry** graduate with minors in mathematics, biological sciences and psychology, has been named a 2020 NCHC Portz Scholar. The Montgomery, Alabama, native is one of four recipients nationwide and will present her honors thesis during the NCHC virtual conference, set for Nov. 4-8.

"I was thrilled to learn that other people outside of the University of Mississippi are interested in my research and I am excited to learn about the other Portz scholars' research," Verville said. "The general public would be interested in my research because the phenomenon known as the hydrophobic effect has many implications in developing new treatments for disease and in drug design and effectiveness."

Dean Douglass Sullivan-Gonzalez said Verville's achievement reflects well on the college.

"We nominated Genevieve's thesis over those of her 343 peers in the Sally McDonnell Barksdale Honors College given its depth and breadth," he said. "The National Collegiate Honors Council chose three top theses, including Genevieve's, over all the nominations submitted by the nation's honors colleges and programs.

"Once again, our SMBHC scholars distinguish themselves not only on campus but in the nation with their scholastic commitment and pursuit of knowledge and understanding."

The focus of Verville's thesis was three organic molecules – called osmolytes – that are important to proteins. These molecules are trimethylamine N-oxide, known as TMAO; guanidinium; and urea.

Osmolytes play crucial roles in protecting cells against environmental stressors that can negatively affect them.

"The exact mechanisms by which TMAO stabilizes and both guanidinium and urea destabilize folded proteins and interact with each is still a mystery," Verville said. "We used a technique called Raman spectroscopy to explore the interactions between the molecules of interest in water to better understand how they interact with each other and affect the adjacent networks of water."

Beginning this fall, Verville plans to spend the next two years working as a post-baccalaureate research fellow at the National Institutes of Health in Bethesda, Maryland. Following completion of her fellowship, she hopes to apply to doctoral programs to continue her education and research.

Nathan Hammer, the university's Margaret McLean Coulter Professor of Chemistry and Biochemistry, served as adviser for Verville's honors thesis.

"Genevieve is one of the finest honors students I have known in my 13-year tenure at Ole Miss," said Hammer, who first met Verville when she enrolled in his lab as a freshman. "She first appeared as second author on a published paper that was featured on a journal cover in the Journal of Physical Chemistry B."

Verville's co-authorship on that first publication with Hammer stemmed from her taking over a project that involved studying TMAO's interactions with urea and her making critical contributions that ensured its completion and success, Hammer said.

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Campus Briefs

Donations Sought for 25th Annual Books and Bears Program

OXFORD, Miss. – The University of Mississippi is asking the community to help spread a little joy this holiday season by donating to the 25th annual Books and Bears program. Donations such as toys, books, dolls, bicycles and other children's play items are being accepted through Dec. 14. All donations will be collected and sorted

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Mississippi Excellence in Coaching Fellowship Aims to Build Leaders

OXFORD, Miss. – Twenty-five inaugural recipients of the Mississippi Excellence in Coaching Fellowship – a program hosted by the University of Mississippi School of Education in partnership with the Mississippi Association of Coaches and the Mississippi High School Activities Association – are expected to increase their impact on student-athletes and their communities. The coaching fellowship

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Ole Miss In the News

Clarion-Ledger: New Essay Collection Tells the Story of Meredith's Enrollment

Essays celebrate 60th anniversary of James Meredith's enrollment at University of Mississippi By Lauren Rhoades Oct. 1 marks the 60th anniversary of James Meredith's 1962 enrollment at the University of Mississippi as the school's first African-American student.

"At an early age, she (Verville) was operating on the level of a graduate student," he said.

Verville's thesis research is the basis of an upcoming article in the Journal of Raman Spectrometry on which she is first author. Hammer noted in his nomination letter for the Portz that "She developed her research plan on her own and I had complete confidence that she would succeed in seeing it through to a successful end."

Verville said she thinks her thesis, titled "Raman Spectroscopic and Quantum Chemical Investigation of the Effects of Tri-Methylamine N-Oxide (TMAO) on Hydrated Urea, Hydrated Guanidinium, and Hydrogen Bonded Networks," will be of interest to the other researchers because the nature of the interactions between the osmolytes continue to be debated.

The 55th annual NCHC conference was scheduled to be held in Dallas but was switched to a virtual format because of the COVID-19 pandemic.

For more about the 2020 NHCH Portz Scholars, visit <https://www.nchchonors.org/students/awards-scholarships/portz-scholars>.

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"James Meredith: Breaking the Barrier," a collection of essays edited by UM professor of journalism Kathleen Wickham, honors this historic milestone with

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