

Research visit to the Gassmann Laboratory

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Mihlali Badiwe

PhD Biotechnology candidate

University of the Western Cape

Coming from a relatively unprivileged background, I've always kept an open mind and aspired to reach a level of success that people like me typically never achieve. As far back as I can remember, I've been a goal driven individual who is always ready to overcome the next challenge. After completing my undergraduate degree in Biotechnology, I enrolled for post graduate studies with the hope that furthering my studies would help me achieve my goal of traveling and residing abroad. During my MSc studies in 2017, I was granted the opportunity to present my research at an international conference in Spetses, Greece. The experience was so enlightening and fulfilling that I decided to pursue more opportunities that would allow me to broaden my horizons. Late 2019, my PhD supervisor Prof Ashwil Klein approached me with an opportunity I could not refuse. We immediately got to work, writing proposals and liaising with his international network. Our enthusiasm and persistence afforded me the opportunity to obtain the Henry Mitchell Scholarship and travel to Prof Walter Gassmann's Lab at University of Missouri, as a visiting scholar. This was an opportunity to spend 3 months in a world renowned scientist's lab. My hard work had begun paving my way to a brighter future.

The trip was initially planned for 2020 but to our disappointment, the COVID-19 pandemic hit and the world was at a standstill. Time went by while I excruciatingly anticipated the end of the pandemic, or at least for the world to return to "normality" again. We finally got the green light and on the 17th of September 2021, and departed from Cape Town International airport. Our flight plan included a connection in Frankfurt, Germany, where we would fly to Chicago, USA. From there we would catch yet another flight to our final destination, Columbia Missouri. After an incredibly exhausting 36 hours of travel time, our disoriented selves arrived at the regional airport in Columbia, MO. Our host Walter was patiently waiting our arrival and welcomed us with immeasurable hospitality. Due to some minor accommodation issues, I was hosted by Kerry Clark (Director, CIP. CAFNR International Programs), on her beautiful farm just outside Columbia. Here I would meet two Kenyan PhD students, Luckio and Brenda, who welcomed and helped me find my feet in the western world. Two weeks later I was well acquainted in Columbia and moved from the farm to University Place (apartments close to campus).

My visit in Walter's lab was the most amazing experience to date. First, he helped me with the University of Missouri registration process in order to obtain a student ID card and gain access to the labs in the Bond Life Science Centre. I was subsequently introduced to the incredible researchers in

his Lab and got to meet Dr Leland Tseke (Lab manager) and Katie Horton (PhD student), whom I worked closely with. We then devised a strategy to align projects I would undertake. I worked on developing a pipeline to screen for bacterial pathogen from wild lettuce, which would be utilized as potential novel candidates for hypersensitivity response studies. I also worked on validating physiological responses of wounded *Arabidopsis thaliana* CRISPR lines, a study aimed at understanding the jasmonic acid pathway. This was truly an amazing time for me which helped to significantly broaden my skill set among incredible, vibrant and extremely helpful researchers.



Fig 1: My experiences in the Gassmann lab. (1) conducting an HR assay on some lettuce leaves, (2) doing some microbiology working, (3) maintaining newly germinated *A. thaliana* CRISPR lines, (4) two key members of the Gassmann lab.

The visit was not all work though. I like to say “work hard, play hard”. During the 3 months I managed to make amazing international friends from Brazil, India, Kenya, Pakistan and South Africa, of course. On occasional weekends we would go downtown or go hiking on Columbia’s many trails, and even drove down to St Louis. Being a planet loving person who is enthusiastic about renewable energy and disruptive technologies, one of the most amazing explorative trips I had was visiting a Tesla motors showroom in St Louis. That was truly amazing.



Fig 2: Trip to St Louis. (1) visiting a Tesla showroom, (2) visiting the St Louis zoo, (3) visiting the famous Mississippi river.

We were having a nice time, making memories that would surely last us a lifetime. Prof Rodney Uphoff would organise American Football and Basketball tickets, where we would attend sporting games. The experience was mind blowing and the energy in the stadiums and arenas was electrifying!

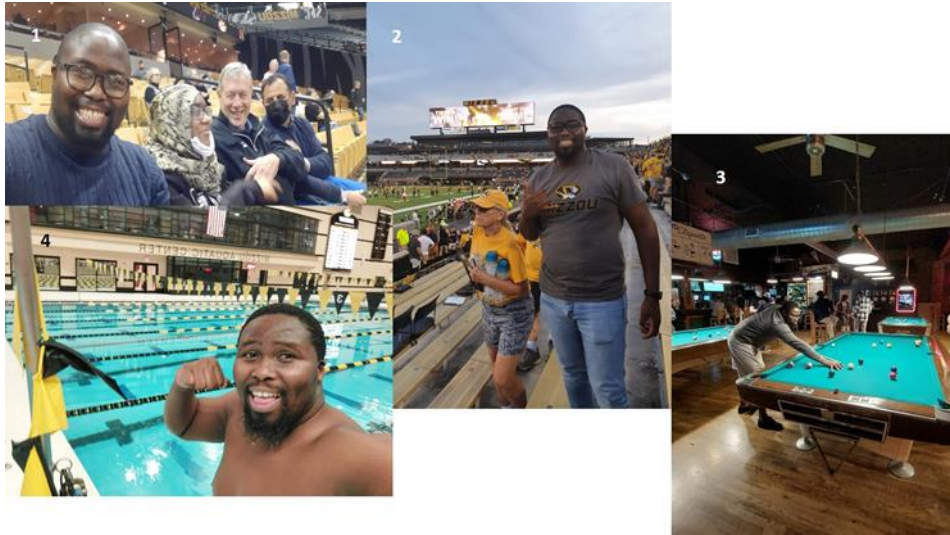


Fig 3: Amazing sporting activities I got to experience. (1) watching a basketball game, (2) watching a game of American football, (3) playing some pool at Billiards, downtown and (4) having a swim at the MU rec centre.

What stands out the most, however, are the memories I have of having warm, homely dinner parties hosted by the Gassmann, Uphoff and Mendoza families. They would open up their homes to us and it surely felt like home. I shall always cherish the memories and remain truly humbled by the hospitality they bestowed upon us.



Fig 4: Special moments shared with amazing families. (1) the Mendoza's, (2) the Uphoff's and (3) the Gassmann's.

With that being said I would like to take this moment to thank the Henry Mitchel scholarship for funding such an amazing, life changing experience. Not only did they fund travel and accommodation but they also supplied a stipend that enabled me to experience the visit comfortably. I would like to

thank Walter Gassmann, his lab members and the University of Missouri for the opportunity that allowed me to gain valuable experience and build an international network that will be a key stepping stone in my development as an academic. Lastly, I would like to thank Prof Ashwil Klein, Prof Rodney Uphoff, Ms Debra Lamson and the University of the Western Cape for their involvement in the programme. They worked 24/7 to make sure everything was well-coordinated and with amazing contingency plans should anything fail. Thank you very much, your work is truly changing the lives of many.