

# MUT researchers take on COVID-19

## MUT research contributes to search for COVID-19 vaccine

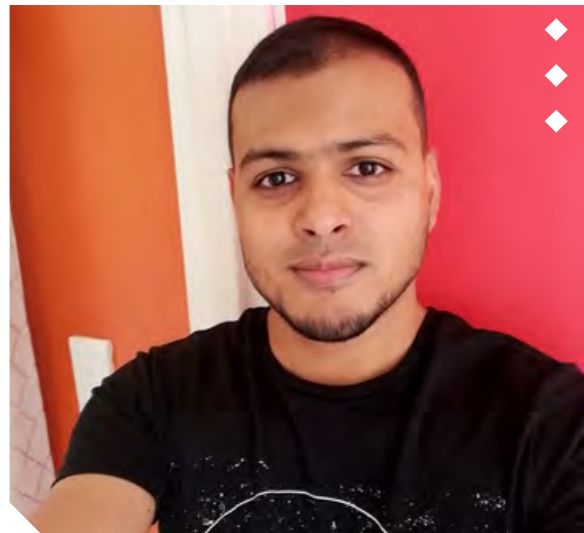
Mangosuthu University of Technology researchers have published a peer-reviewed research paper on the feasibility of potential drugs against the coronavirus. Dr Devashan Naidoo, Dr Taurai Mutanda and Professor Akash Anandraj, all from the Department of Nature Conservation's Centre for Algal Biotechnology (CAB), collaborated with their counterpart at the University of North Bengal in India to conduct a three-month computational study on COVID-19.

Dr Naidoo, the principal investigator, said: "We wanted to determine the feasibility of cyanobacterial metabolites as potential drugs against the virus. For a drug to be effective, it is required that it binds to the virus at functional sites."

"We found that several compounds were able to bind to the proteins with relative potency. However, for a drug to be effective it needs to also be safe and non-toxic," said Dr Naidoo. The research team evaluated the toxicity of each of the compounds and found that one in particular, deoxycylindrospermopsin, was the safest. The safety and stability that the compound displayed are the hallmarks of a potential drug.

In terms of how South Africans will benefit from the research, Dr Naidoo said the compounds evaluated in the study are proposed as candidate lead drugs that require further evaluation *in vitro* and *in vivo*. "Since we predicted that these compounds have the ability to bind to functional components of the viral genome, they could potentially inhibit the processes that lead to viral replication," said Dr Naidoo. He added that it would give the host the ability to effectively control the spread of the virus within the body. He said this research could pave the way for the development of effective therapeutics in the fight against COVID-19 in South Africa as well as globally.

However, Dr Naidoo admitted that researchers were still far from developing an effective treatment or vaccine for the virus, although great strides have been made in this regard. There are some 145 vaccines



Dr Devashan Naidoo

that are currently undergoing clinical trials globally and several drugs that are currently being evaluated. "However, the processes are complex and require a lot of time and effort. For instance, the compounds that we propose require further evaluation under laboratory conditions as well as clinical trials prior to approval by the Food and Drug Administration (FDA). This process could take months," he said.

Dr Naidoo said the research was done over a period of three months during South Africa's lockdown. The title of the paper is "Cyanobacterial metabolites as promising drug leads against the M<sup>pro</sup> and PL<sup>pro</sup> of SARS-CoV-2: an *in silico* analysis".