New drug research to help fish farming industry

A young but world class team of researchers from Unit for Drug Discovery at Central University of Technology, Free State (CUT) have discovered a new drug to help fight aquatic animal infections caused by aquatic parasites. Some of the deadliest pathogens in the world are found in the fish farming industry.

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For years, researchers across the world have been trying to understand these oomycetes - fungus-like microorganisms - in order to control the disease and develop novel drugs against these pathogens. CUT researchers are leading the way in finding solutions that will end this socio-economic challenge.

Led by Prof Samson Sitheni Mashele and Dr Khajamohiddin Syed, the researchers analysed cytochrome P450 monooxygenase proteins in 13 pathogenic oomycete genomes, which resulted in the discovery of novel cytochrome P450 monooxygenase proteins that can be used as a drug target against these pathogens.

CUT researchers collaborated with highly acclaimed international scientists namely, Prof David R Nelson from University of Tennessee, US, Prof Jae-Hyuk Yu from University of Wisconsin-Madison, US and Dr Wanping Chen Huazhong Agricultural University, China.

Named Cytochrome P450 monooxygenase protein, it was discovered using bioinformatics techniques, such as comparative genomics and proteomics. Currently, CUT researchers are busy with investigating solutions that would sustain the aquatic resources while helping to increase high production levels of aqua farming for commercial purposes, food security and poverty alleviation. Their work highlights the important role which aqua farming plays in promoting healthful living and fighting poverty and hunger.

Aqua farming is a big industry that is widespread across the world. It constitutes the farming of water animals such as fish, shrimps, prawns, squid and octopus and considered by United Nations an important sector that provides livelihood to more than 60 million people in Africa and Asia. Consumption of these animals remains a vital source of protein and essential nutrients, especially for developing countries where they constitute almost half of the total value of their traded communities.

The results of this study have been accepted for publication in the Nature Publication Group journal, 'Scientific Reports', a prestigious multidisciplinary scientific international journal with an impact factor of 5.1. For more information, go to www.cut.ac.za.