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UH News

UH Microbiologists Complete Genome Sequence of New Bacterial Species Discovered in Hawaii

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Researchers at the University of Hawai'i recently finished sequencing the genome of a bacterium — a new species discovered from the Lô'ihi underwater volcano located more than 4,000 feet below the surface of the Pacific Ocean off the island of Hawai'i.

Led by Maqsudul Alam, professor in the Department of Microbiology of the UH Mânoa College of Natural Sciences, the research team, which included researchers, undergraduate and graduate students, covered the 2,839,379 "letters" of the circular chromosome almost 10 times.

According to Alam, that "is well above average for this type of work, and also means the quality is extremely high." Now that the team has the knowledge of the microorganism's genetic code, a whole new field of research discovering what each of its genes can do has just opened up. Relatives of this new species are known and valuable for breaking down many contaminants or binding metals. Also, with the study of bacteria from the deep sea being a new and growing research field itself, the team hopes their research may lead to other interesting discoveries, especially in antibiotics and enzymes.

Research aimed at determining what the genetic code means has begun at the Maui High Performance Computing Center (MHPCC) with the collaboration of a research team led by Dr. Eugene Koonin, a world-renowned bioinformatician at the National Center of Biotechnology Information of the National Institutes of Health. Very soon, the public will be able to see the entire genetic code of the bacterium, the first new bacterial species discovered in Hawai'i.

This work was initially funded by the university's Marine Bioproducts Engineering Center (MarBEC), the National Science Foundation, and through UH intramural funds and RCUH funds. It is the first microbial genome-sequencing project in the state of Hawai'i.