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Molecular identification of filamentous fungi diversity in north coast beaches of Puerto Rico

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The Northern region has a great variety of beaches with diverse microbial characteristics. Beach sands receive direct contamination from the garbage generated by people, which serves as nutrient for fungi growth. The objectives of this investigation were to assess the filamentous fungi diversity of four popular beaches; identify the genus and species; and identify the taxonomic relationship between the most abundant fungi. The beaches studied are located in the towns of Vega Baja, Manatí, Barceloneta and Arecibo. One sample of dry sand per month from three equidistant points were acquired every month for a year in each beach. The samples were homogenized according to dry (December-April) and humid (May-November) seasons, for a total of four composite samples per season. The DNA of each sample was isolated and quantified; and, upon sequencing, evaluated by metagenomic analysis with MG-RAST. There were 104 fungi species identified by DNA sequencing analysis. The most abundant were: *Aspergillus penicillioides*, *Aspergillus terreus*, *Microascus sp.*, *Arthrographis kalrae*, *Paramicrosporidium*

sp., *Dokmaia sp.*, *Gliomastix polychroma* and *Aspergillus sp.* The taxonomic analysis demonstrated that there is no relationship in the genus of the most abundant species. As a significant finding, 66 species of new registries were identified, including *Malassezia restricta*, *Arthrographis eremomyces*, and *Cephalophora tropica*. Not only were many of the species pathogenic, several genus of filamentous fungi have been previously isolated from patients in nasal culture, and can cause eye, respiratory and skin disease. The majority of these fungi use direct contact and air transport as transmission vehicle to the host.

Speaker Biography

Echevarría L has completed her PhD. (Environmental Sciences), From Ana G. Mendez University in 2016. She has published more than 3 papers in a reputed journals and one book. She has been serving as an editorial board of 3 journals. She is an associate professor of Environmental Sciences and Biology department.

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