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LAYMAN'S ABSTRACTS

Benthic Macroinvertebrates of the University of the Philippines Diliman Campus Waterways and Their Variation Across Land Use in an Urban, Academic Landscape

Francis S. Magbanua, John Claude Renan B. Salluta, Danielle Dominique D. Deborde and Maria Brenda M. Hernandez

Urban development affects streams through changes in stream flow, shape, and water quality which influence the aquatic communities. The University of the Philippines Diliman campus has gone through numerous landscape and infrastructure developments. Unlike the terrestrial environment, the extent to which these developments have impacted the campus waterways is unknown. Thus, our research aims to assess the overall condition of the waterways in the campus using the benthic macroinvertebrate communities. A total of 19 stream reaches were sampled in November 2015 and 2016 in the following land use categories: academic units (6 sites), campus core (8 sites), and parks and open spaces (5 sites). Our study reveals that all sampled stream reaches, regardless of their land use categories, are under poor to severe pollution conditions. All macroinvertebrate-based metrics and indices indicate degraded water quality and stream health. Our results are consistent with urban stream studies elsewhere, which suggest that land-based activities can be stressful for some aquatic organisms, and at times, result in reduced abundance and even reduction in species composition.

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Validation of Two Extraction Methods for Human DNA from Cigarette Butts

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Cigarette butts found in crime scenes may be used to identify persons and link them to a crime through DNA analysis on evidentiary materials. The analysis of cigarette butts is challenging because these items are often exposed to chemical and environmental contaminants which can damage the DNA. In this study, several factors were tested to compare the amount and quality of DNA obtained from cigarette butts using two methods for extracting DNA. Results show that exposure to an outside environment has significant effects on DNA yield and recovery for both extraction procedures. Prolonged storage of cigarette butts of up to six months affected the amount of DNA that can be obtained using the kit-based method. However, complete DNA profiles can be generated from cigarette butts stored for six months provided that these samples are stored indoors under controlled temperature conditions and with minimal exposure to contaminants.

Foliar Fungal Endophytes of Selected Medicinal Plants from the Province of Albay, Philippines

Jonathan Jaime G. Guerrero, Mheljor A. General and Jazzlyn T. Imperial

Fungi residing within plants known as endophytes were isolated from the leaves of the ten most frequently used medicinal plants in the province of Albay at three different locations: upland, lowland, and coastal areas. The occurrence, frequency, and isolation rate of these fungi were compared. A total of 120 isolates belonging to 17 species were identified. *Glomerella cingulata* and *Colletotrichum gloeosporioides* were the most frequent fungi occurring in 10 and nine plants, respectively.

The total number of isolates and unique species did not vary significantly across sampling sites. *Blumea balsamifera* (Sambong) hosted the most endophytes with 16 isolates, while banana leaves yielded the least with eight isolates. Some species of fungi were found in all sampling sites, while a few occurred only in one site. The collection of additional samples from other sites within the province and the testing of the biological properties of the isolates are recommended.

"Pee Value": Storing Urine for Subsequent DNA Analysis

Nelvie Fatima Jane A. Soliven, Maria Lourdes D. Honrado, Gayvelline C. Calacal and Maria Corazon A. De Ungria

The Philippine government implements mandatory and random drug testing to monitor cases of drug abuse and trading. Due to the possible repercussions of testing positive for drug use, definite identification of the source of the urine is crucial. DNA profiling has resolved issues regarding identification of the source of urine in many cases abroad. The inclusion of DNA testing during drug investigations in the Philippines can improve the process of identifying drug users and address allegations of misconduct. Since DNA testing is previously not considered in drug investigations in the Philippines, there is a need to test if storage procedures for urine that showed positive results allow for subsequent DNA testing. In this study, DNA from male individuals were extracted from urine stored at room temperature, 4°C, and -20°C for 2 months and 9 months followed by DNA profiling. Overall, DNA extracted from urine samples stored at cool temperatures (4°C and -20°C) were found to provide better DNA profiles compared to samples that were stored at room temperature. A decision tree for drug testing that should serve as support tool for Philippine government agencies engaged in drug investigations was proposed.