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Surveillance of intestinal protozoans and multidrug resistant bacteria from various water samples from the Philippines

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As water pollution is one of the key health issues in the Philippines, parasitological and bacteriological surveys were made on various water systems in the Philippines with the hope of assisting policy makers in coming up with environmental health programs for the region. A total of thirty three water samples were examined for the presence of *Cryptosporidium spp*. and *Giardia* spp. using an immunomagnetic separation method and fluorescence microscopy. Likewise, *Acanthamoeba* and *Naegleria* were tested through microscopy examination and polymerase chain reaction (PCR). Results of the parasitological analysis revealed that twelve samples were positive for *Cryptosporidium spp*. (36.4%); 17 (45.5%) for *Giardia* spp., 13 (33.3%) for *Acanthamoeba* and 5 (18.2%) for *Naegleria* spp. The occurrence of *Giardia* in the water samples was positively correlated with nitrite ($r=0.736$, $p<0.01$) as well as nitrate concentration ($r=0.502$, $p<0.01$). These findings may serve as baseline surveillance data for parasitic contamination in various water systems in the Philippines. Likewise, the occurrence of multidrug resistant bacteria (defined as resistance to at least three antibiotics) in selected river systems was also investigated. The resistance profile of the 27 bacterial isolates from Pampanga River, 8 isolates from Estero de San Miguel and 9 isolates from Pasig River were determined against five to ten antibiotics using the Kirby Bauer disk diffusion method. Results showed that all the 37 out of 44 isolates (20 from Pampanga; all 8 from Estero de San Miguel and all 9 from Pasig River) were resistant to at least three antibiotics. In this study, 9 thermotolerant multiple drug resistant (MDR) bacterial isolates were identified. Further investigation has to be made as to how these MDR had been introduced into these bodies of water which may place the public at great risk.

Biography

Julieta Z Dungca has completed her PhD from De La Salle University. She is a registered Medical Technologist and a Biologist. She is currently the Dean of the School Science and Technology, Centro Escolar University, Manila, Philippines. She has published a number of papers in reputed journals in the area of Parasitology and Microbiology.

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