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Heavy Metals and Antibiotic Resistant Bacteria as Indicators of Effluent Environmental Pollution in the Green Turtles, Chelonia Mydas

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Abstract : At Ras Al-Hadd Reserve, Eggs from green turtles and Chelonia mydas were randomly collected immediately after Oviposition. Eggshells taken from fresh eggs and sand collected from the body chamber were analyzed for eight heavy metals (Al, Br, Cd, Co, Cu, Fe, S, and Zn) using inductively coupled plasma mass spectrometry (ICP). Heavy metal concentrations varied significantly ($P<0.05$) between nest sand and eggshells. Zn values were significantly higher than the other heavy metals. A total of 60 heterotrophic bacteria belong to eight genera were isolated from fresh egg contents (albumen and yolk). Resistance of the isolates to Amikacin, ampicillin, chloramphenicol, gentamycine, minocylin, nalidixicacid, neomycin, streptomycin, tetracycline, tobramycin, and Trimethoprim was tested. More than 40 % of the isolates were multiple resistant to 2-7 antibiotics. Most of the resistant strains were also resistant to Zn. The value of these findings may indicate that the origin of pollution is of human contaminated effluents.

Keywords : antibiotic resistance, bacteria, environment, heavy metals, sea turtles
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