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COMPERATIVE ANALYSIS OF MICROORGANISMS AND HEAVY METAL CONTAMINATION OF PERIWINKLE (*Tympanotonus fuscatus* and *Pachymalania aurita*) IN AKWA IBOM STATE

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Microbiological and heavy metal concentrations of periwinkle (*Tympanotonus fuscatus* and *Pachymalania aurita*) harvested from three aquatic ecosystems in Akwa Ibom State were determined using standard microbiological and chemical techniques. The antibiotic susceptibility profiles of the isolates were determined using disc diffusion technique. The total heterotrophic bacterial counts and total coliform counts of the periwinkle samples ranged from $3.4 \times 10^7 \pm 0.07$ to $4.1 \times 10^7 \pm 0.29$ cfu/g and $2.8 \times 10^5 \pm 0.33$ to $4.1 \times 10^5 \pm 0.38$ cfu/g, respectively. The total fungal and total vibrio counts ranged from $1.4 \times 10^5 \pm 0.44$ to $2.2 \times 10^5 \pm 0.25$ cfu/g and $9.2 \times 10^4 \pm 2.18$ to $1.0 \times 10^5 \pm 2.64$ cfu/g, respectively. The faecal coliform and total salmonella-shigella counts ranged from $1.6 \times 10^5 \pm 1.93$ to $2.4 \times 10^5 \pm 0.14$ cfu/g and $1.9 \times 10^5 \pm 2.13$ to $2.5 \times 10^5 \pm 0.22$ cfu/g, respectively. Eleven bacterial genera comprising *Bacillus*, *Salmonella*, *Escherichia*, *Enterobacter*, *Pseudomonas*, *Shigella*, *Staphylococcus*, *Vibrio*, *Serratia*, *Proteus* and *Streptococcus* were isolated from the samples, while the fungal isolates were *Aspergillus*, *Mucor*, *Penicillium*, *Rhizopus* and *Candida* species. The bacterial isolates were highly resistant to Amoxicillin/Clavulanates and Cefuroxime, while high sensitivities to Gentamicin were observed among *E. coli*, *Staphylococcus* spp. and *Pseudomonas* spp. The concentrations of lead and copper in the periwinkle samples ranged from 6.076 ± 0.004 to 9.158 ± 0.05 mg/l and $6.621.049 \pm 0.006$ to 103.850 ± 0.099 mg/l, respectively, while the cadmium and chromium concentrations in the samples ranged from 0.641 ± 0.980 to 1.054 ± 1.441 and 0.050 ± 1.681 to 12.615 ± 2.051 mg/kg, respectively. The concentrations of mercury in the samples ranged from 0 to 1.291 ± 0.185 mg/kg. There was a significant correlation ($p < 0.05$) in the microbial loads and heavy metals concentration of the samples. The microbial counts and bioconcentration of heavy metals in the unprocessed periwinkle obtained in this study were beyond specified standard limits by International Commission of Microbiological Specification for Food and Federal Environmental Protection Agency. Consequently, the periwinkle should be properly processed before consumption

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