Temporal Variation in the Diversity and Cover of Sessile Species in Rocky Intertidal Communities Affected by Copper Mine Tailings in Northern Chile

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Abstract

Several coastal rocky shores in the northern Chile have been affected by the discharges of copper mine tailings. In spite of this, the temporal and spatial variation on the diversity and composition of their intertidal benthic communities has scarcely been studied. The objectives of the present study were to analyse and to compare quantitatively the temporal variation on the diversity, cover and composition of sessile species in rocky intertidal benthic communities of the northern Chilean coast, in relation to the presence of copper mine tailings. The results show that the drastic reduction on the sessile species diversity and the monopolization of the substrate exerted by the green algae *Enteromorpha compressa*, are common and permanent features of the intertidal rocky shores affected by copper mine tailings. Such spatial (between sites) and temporal (seasonal) variation of these changes has been associated with the relative concentrations of trace metals and inorganic particles of the mining wastes. Our results suggest that the mechanical effects of resuspended and settling tailings are a more likely cause.