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Heavy metal pollution monitoring using brown seaweed *Padina durvillaei* in the coastal zone of Santa Rosalía mining region, Baja California Peninsula, Mexico

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Heavy metal concentrations in brown seaweeds *Padina durvillaei*, collected in May 2004, August 2004 and June 2005 in the 13 stations located along the Santa Rosalía copper mining region on the eastern coast of the Peninsula of Baja California, were measured by instrumental neutron activation analysis (Co and Fe) directly in dried homogenized subsamples or by flame atomic absorption spectrophotometry after complete strong acid digestion of subsamples (Cd, Cu, Mn, Ni, Pb and Zn). On a basis of the mean concentrations in dry tissues of *Padina durvillaei* from all stations the studied metals present the following sequence: Cd (3.6 mg kg⁻¹) < Co (6.5 mg kg⁻¹) < Pb (7.8 mg kg⁻¹) < Ni (9.96 mg kg⁻¹) < Cu (53 mg kg⁻¹) < Zn (63 mg kg⁻¹) < Mn (295 mg kg⁻¹) < Fe (2243 mg kg⁻¹). Obtained metal content data do not reveal any enrichment in seaweeds from the central segment of the coastal line, where the sediments are strongly polluted by Co, Cu, Mn and Zn appeared due to solid waste disposal of copper mining and smelting in past century. Such apparent contradiction could be explained by a strong fixation of metals in the residual fraction of the sediments and very low probability of the mobilizing of metals from the solid matrix to sediment interstitial waters and near bottom sea waters.

Palabras clave: Baja California Peninsula, Navigation canal, heavy metals, Accumulation, *Padina durvillaei*, Santa Rosalía mining district

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