

## Studies on Bioaccumulation of $^{51}\text{Cr}$ by *Ulva* sp. and *Ruppia maritima*

**Authors :** Clarissa L. de Araujo, Kátia N. Suzuki, Wilson T. V. Machado, Luis F. Bellido, Alfredo V.B. Bellido

**Abstract :** This study aims at contributing to the characterization of the process of biological incorporation of chromium by two benthonic species, the macroalgae *Ulva* sp. and the aquatic macrophyte *Ruppia maritima*, to subsidize future activities of monitoring the contamination of aquatic biota. This study is based on laboratory experiments to characterize the incorporation kinetics of the radiotracer  $^{51}\text{Cr}$  in two oxidation states (III and VI), under different salinities (7, 15, and 21 ‰). Samples of two benthonic species were collected on the margins of Rodrigo de Freitas Lagoon (Rio de Janeiro, Brazil), acclimated in the laboratory and subsequently subjected to experiments. In tests with  $^{51}\text{Cr}$  (III and IV), it was observed that accumulation of the metal in *Ulva* sp. has inverse relationship with salinity, while for *R. maritima*, the maximum accumulation occurs in salinity 21‰. In experiments with Cr(III), increases in the uptake of ion by both species were verified. The activity of Cr(III) was up to 19 times greater than the Cr(VI). As regards the potential for accumulation of metals, a better sensitivity of *Ulva* sp. for any chromium tri or hexavalent forms was verified, while for the Cr(VI) it will require low salinities and longer exposure (>24h). For *R. maritima*, the results showed the uptake of Cr(VI) increase along with time (>20h), because this species is more resistant for the hexavalent form and useful for any salinity as well.

**Keywords :** chromium, Cr-51, macroalgae, macrophyte, uptake

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