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Mercury and non-protein thiol compounds in the seagrass *Posidonia oceanica*

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Abstract

Mercury concentrations, non-protein thiol levels and the enzyme activities of glutathione-*S*-transferase (GST) were measured in the blades and sheaths of the marine phanerogam *Posidonia oceanica*. The seagrass was collected in January and June and at three sites: the Bay of Rosignano (Italy) known for its mercury contamination, the north of the Lérins islands (Bay of Cannes, France), the Bay of Tonnara (Corsica, France). The two latter sites are considered as free of any known industrial inputs. Mercury concentrations and GST activities in both tissues were always higher in samples from Rosignano, particularly in June. Non-protein thiol levels were significantly higher in the blades than in the sheaths of *P. oceanica* from Tonnara and Lérins. In contrast, at Rosignano, the sheaths presented a significantly higher non-protein thiol concentration than the blades, particularly in June. Levels in the sheaths appeared to increase with the degree of pollution. Western Blot performed on sheaths of *P. oceanica* collected in June at Rosignano and Lérins revealed a characteristic band of GSTs at 31 kDa, proving the presence of the GST enzyme in this tissue. Mercury seemed to exert an influence upon non-protein thiol metabolism, including GST induction, in *P. oceanica* collected from the NW Mediterranean.

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