**Site-specific sediment characteristics impact on metal bioavailability and bioaccumulation in the Polychaete *Nereis virens***

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The king ragworm (*Nereis virens*) is a cosmopolitan species of soft sediment inter-tidal communities and is known to be impacted by various pollutants. More precisely, in many coastal locations, *N. virens* is exposed to a range of metals including copper and zinc which are known to be highly toxic. However, the relationships between metal bioavailable concentrations in the sediment, the pore water and the tissues of *N. virens* have not yet been investigated in this is ecologically and commercially important species. Hence, to investigate these relationships, sediment, pore water and associated worms samples were collected from seven sites along the English Channel coast of the UK, chosen for their different pollution histories. The BCR three-step sequential extraction procedure was used to assess the bioavailable metal concentrations in the sediment, in conjunction to standard extraction techniques to determine the tissue and the pore water concentrations. All samples were measured by Atomic Absorption Spectroscopy (FAAS). Results from correlation analyses showed that site specificities and metal pollution histories along with sediment characteristics (organic content and particle size) were important factors regarding the bioavailability of copper and zinc to worms. Indeed, sediment organic content and grain size were positively correlated to metal bioavailable concentrations in the sediment. Strong correlations were found between copper bioavailability in the sediment and in the pore water and between zinc concentrations in the pore water and in *N. virens*. These results showed that zinc from the pore water was more readily bioavailable to *N. virens* than copper. However, our data suggested that *N. virens* accumulated metals regardless of the pollution history/level of the sites. In addition, our data showed that metal concentrations in *N. virens* were lower than those found in other closely related polychaetes such as *N. diversicolor.* This suggests that *N. virens*, unlike other polychaetes, is well adapted to highly contaminated sites by the possible use of specific metal regulation mechanisms, which would require further analysis.