

Pollen sedimentation in fluvio-marine systems: a comparison between modern pollen evidence in sea-floor, coastal lagoons and upland ponds from Ría de Vigo, NW Iberia

PRESENTED BY

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ABSTRACT

To determine whether modern pollen content from 1) marine, 2) coastal lagoon, and 3) upland lake sediments reflects the factual regional and extra-local vegetation composition, we analysed modern samples at the same main fluvio-marine basin (Ría de Vigo, NW Iberia). Aspects such as basin size and morphology, relative position in the catchment, local vegetation, canopy configuration and seasonality of the water table were considered. Our results suggest that the average pollen percentages of all upland pond sediment samples studied allows a fairly good reconstruction of the main vegetation units in the area. Still, major differences between the average samples obtained in each sedimentary system and also between some samples taken from the same system are found. The main factors explaining those differences are the size of the pond, its tree canopy and the seasonality of the water table, which strongly determines the Ericaceae and Pinus percentages. Anomalous Pinus pollen peaks occur in dry periods when the water table remains low, and sediment can also be depleted of some high-buoyancy pollen types (tetrads and saccate) when the water level is high and effluents are active. Samples taken in the semi-closed coastal lagoon-beach complex at the Cíes Islands suggest that Pinus pollen abundance increases in the intertidal flats samples with respect to those taken in the subtidal zone of the lagoon. Besides, the Pinus pollen concentrations in both the intertidal and subtidal samples at the lagoon are significantly lower than Pinus pollen concentrations found in other full-marine subtidal sediments recovered along the main axis of the ria. On the other hand, there is currently no local heathland on the islands, nor was there throughout the 20th century, and the closest heaths in the continent are more than 5 km distant. Nevertheless, we have found Erica pollen evidence inside the lagoon of Cíes Islands. Its spatial distribution seems to be preferentially related to the western connection between the lagoon and the ocean that allows water exchange throughout the tidal cycle. Thus, the new pollen data can confirm the preferential ability of tetrads to be long-distant transported by sea-water currents.

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