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Abstract

This study analyzed the crustacean diversity, distribution and relationship with environmental factors in the western and the southern Portuguese continental shelf, between 10 and 200 meters depth. A total of 10639 specimens belonging to 242 taxa from 90 families were identified, mostly amphipods (55.8% of the total taxa). The mysid *Gastrosaccus spinifer* and the amphipods *Socarnes erythrophthalmus* and *Cheirocratus sundevallii* were the most abundant and the amphipods *Ampelisca brevicornis*, *Leucothoe incisa* and *Autonoe spiniventris* were the most frequent species. The highest abundance and diversity was found in coarser sediments with up to 306 individuals per 0.1 m^2. Alpha diversity ranged from 1 to 28 sp./0.1 m^2. Moreover, this study confirmed six previously doubtful first records and added an additional 19 new records to the Portuguese fauna. The results also confirmed the Portuguese coast as a transition zone of mixed Atlantic and Mediterranean faunas and exposed a noticeable North African and Macaronesian influence. A multivariate analysis based on the abundance of crustaceans revealed six affinity groups characterized by: (a) *Cheirocratus sundevallii*, *Guernea* (*Guernea*) *coalita* and *Sarsinebalia cristoboi* on very coarse sands; (b) *Gastrosaccus spinifer*, *Nototropis falcatus* and *Pontocrates arenarius* on coarse sands; (c) *Othomaera othonis*, *Processa modica modica* and *Animoceradocus semiserratus* on heterogeneous medium sands; (d) *Ampelisca brevicornis*, *Urothoe pulchella* and *Necalianassa truncata* on fine sands; (e) *Ampelisca pectenata*, *Bodotria scorpioides* and *Astacilla dilatata* on heterogeneous fine sands and (f) *Callianassa subterranea*, *Ampelisca tenuicornis* and *Ampelisca typica* on muddy fine sands. Sediment grain-size and depth were the variables best related to the benthic crustacean spatial distribution patterns along the Portuguese continental shelf.

Keywords: Crustaceans; Portugal shelf; Western Mediterranean; Northeast Atlantic; North African; Macaronesian