

**THE MARINE BRACHYURAN CRAB *PYROMAIA TUBERCULATA*
(LOCKINGTON, 1877) REACHED EUROPE**

Jorge Lobo ^{1,2*}, Miriam Tuaty-Guerra ¹ and Maria José Gaudêncio ¹

¹ IPMA, Portugal - jorge.arteaga@ipma.pt

² MARE, Portugal

Abstract

Pyromaia tuberculata is native of the North-Eastern Pacific Ocean and currently established in distant regions in the Pacific Ocean and South-Western Atlantic. Outside its native range, this species has become established in organically polluted enclosed waters such as bays. The Tagus estuary, with a broad shallow bay, is one of the largest estuaries in the west coast of Europe, located in western mainland Portugal, bordering the city of Lisbon. In this study, sediment samples were collected in the estuary between 2015 and 2017 with a Smith-McIntyre grab and a beam trawl. *P. tuberculata* was first found in 2016 and again in 2017. Six adult specimens including one ovigerous female were collected and morphologically identified. A portion of tissue was used for DNA extraction, amplification of the genetic marker Cytochrome c oxidase subunit I (COI-5P) and subsequent sequencing. Both morphological and genetic approaches resulted in an accurate identification of the species.

Since the species has pelagic larval stages, it is likely that ballast water is the vector of introduction in Europe. The constant presence of adults including the ovigerous female over the 2-year sampling period suggests that the species has become established in the Tagus estuary. Moreover, the short life cycle (six months), allowing producing at least two generations per year with females reaching maturity within six months after settlement, favours population establishment. In spite of being referred as invasive, there are no records of adverse effects of *P. tuberculata* to the environment and socioeconomy in regions outside its native range. However, it is important to consider its inclusion in European monitoring programmes of non-indigenous species, in order to improve knowledge on its biology and behaviour.

Keywords: DNA barcoding, Europe, new record, non-indigenous species