

The Atlantic blue crab *Callinectes sapidus* is an ecologically and economically significant portunid crustacean native to the western Atlantic. Over the past decade, it has been recorded as an invasive species in various North African coastal ecosystems, including the Moroccan Atlantic coast. It serves as a host to several parasites both in native and introduced areas. The main objectives of this study is to determine the origin and structure of Moroccan populations of *C. sapidus*, track their introduction pathways, and investigate the diversity of parasites. Knowledge about the symbionts associated with these populations will enable us to assess their effects on native biodiversity, associated marine diseases, and risks to human health and the economy. Overall, 110 specimens of *C. sapidus* from Morocco were analyzed, including 30 from the Marchica Lagoon (Mediterranean coast), and 80 specimens from the Atlantic coast (30 from Merja Zerga Lagoon, 30 from Sidi Moussa Lagoon, and 20 from Oualidia Lagoon).

In total, our effort resulted in genetic characterization of 110 individuals of *C. sapidus* originated evenly from the Moroccan sampling sites using a 572bp fragment of the cytochrome oxidase subunit 1 (COI) marker. Comparison with previously published sequenced from both native and non-native areas revealed a high genetic variation within *C. sapidus* in Morocco and link with populations along the eastern coast of the United States. To test the enemy release hypothesis and to check for parasite spillover or spillback events, we compared the parasites associated with *C. sapidus* and two native crab species, *Carcinus maenas* (family: Portunidae) and *Afruca tangeri* (family: Ocypodidae), which play important roles in Moroccan coastal ecosystems and fisheries. The hemolymph of each specimen was examined for the presence of *Hematodinium* sp., a parasitic dinoflagellate known to cause diseases in crustaceans by staining fresh hemolymph smears and by analysing the portion of Internal Transcribed Spacer 1(ITS1) rDNA. Additionally, organs (hepatopancreas, gills, heart, and thoracic ganglion) were squashed and examined under a compound microscope to identify other parasites.

Preliminary results confirmed the presence of *Hematodinium perezii* in the hemolymph of all three crab species. Additionally, *C. sapidus* was found to harbor digenean trematodes and microsporidians. *C. maenas* contained representatives of haplosporidians, as well as amoebae and ciliates, while *A. tangeri* harbored haplosporidians. Ongoing molecular analysis will help us to reveal origin of these host-parasite interactions potentially leading to increased disease transmission or ecological disruption.