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Short communication

On the occurrence of *Bursatella leachii* De Blainville, 1817 and *Pinctada radiata* (Leach, 1814) in the Ghar El Melh lagoon (NE Tunisia)

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Abstract

Two alien molluscs, *Bursatella leachii* and *Pinctada radiata*, have extended their range along the Tunisian coast and are reported here from the Ghar El Melh lagoon, at the northeast of the Gulf of Tunis.

Key words: mollusca, *Bursatella leachii*, *Pinctada radiata*, alien, Tunisia

Since the opening of the Suez Canal in 1869, a large number of Indo West Pacific molluscs have entered the Mediterranean through the Canal and established permanent populations along its coasts. Galil (2008) and Zenetos et al. (2008) listed respectively a total of 188 and 210 alien species mostly of Indo-Pacific origin in the Mediterranean Sea. The bivalve *Pinctada radiata* (Leach, 1814), was recorded as early as 1890 (Vassel 1897) in the gulf of Gabès (south of Tunisia), followed nearly one century later by sixteen more alien species which include the bivalves *Fulvia fragilis* (Forsskål, 1775) (Passamonti 1996), *Musculista senhousia* (Benson, 1842) (Ben Souissi et al. 2004), the gastropods *Melibe viridis* (Kelaart, 1858) (Cattaneo-Vietti et al. 1990); *Cerithium scabridum* Philippi, 1848 and *Bursatella leachii* de Blainville, 1817 (Enzenross and Enzenross 2001), *Chromodoris quadricolor* (Rüppell and Leuckart, 1828) (Ben Souissi et al. 2004), *Erosaria turdus* (Lamarck, 1810) (Wimart-Rouseau and Wimart-Rouseau 2004; Boyer and Simbille 2006); and most recently *Cellana rota* (Zaouali et al. 2007), *Siphonaria pectinata* (Linnaeus, 1758) and *Echinolittorina punctata* (Gmelin, 1791) (Antit et al. 2007). Initial colonisation of most of these alien species may have been restricted to the gulf of Gabès. Some, like *B. leachii* and *P. radiata*, eventually colonised the northern Tunisian coast.

The shallow Ghar El Melh lagoon (20 - 50 cm deep), situated in the northeast of the Gulf of Tunis, is considered as one of the most important wetlands in Tunisia (Romdhane 1985). The substrate of the sampling site (37°09'N, 10°13'E) is muddy to sandy with dense meadows of *Cymodocea nodosa* (Ucria) *Ascherson* mix to *Nanozostera noltii* (Hornemann) Tomlinson and Posluzny, *Ruppia maritima* Linnaeus and *R. cirrhosa* (Petagna). No alien species had been previously reported from the lagoon. During a survey of the fauna carried out in the northeast of the Ghar El Melh lagoon from June 2006 to October 2007, specimens of *P. radiata* and *B. leachii* (Figures 1, 2) were collected, photographed, then fixed in 4% formaledyde and deposited at the Animal Biology and Evolutionary Systematics Department, University of Sciences of Tunis, Tunisia. The finding of juvenile specimens suggests that the species are established in the area.

Bursatella leachii is a circumtropical species, widespread along the temperate water of the Indo-Pacific and Atlantic Ocean, and common in the eastern Mediterranean (Zenetos et al. 2004). In Tunisia, this species was first recorded in 1996 (Enzenros and Enzenros 2001) from Kerkennah Islands, in the gulf of Gabès. Recently, Ben Souissi et al. (2005) and Diawara et al. (2008) reported the species' spread to the lagoon of Tunis. In Ghar El Melh lagoon its density peaked in April 2007, when it formed massive aggregations in the northeast part of the lagoon.

Figure 1. *Bursatella leachii*. Ghar El Melh lagoon. Photograph by Y. R. Sghaier

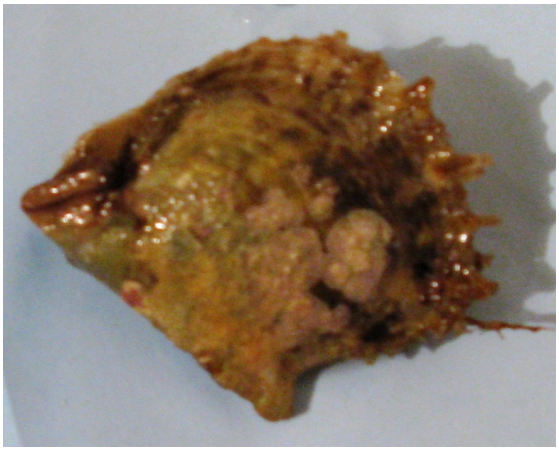

Figure 2. *Pinctada radiata*. Ghar El Melh lagoon. Photograph by R. Zakhama-Sraieb

Pinctada radiata was first recorded in the Mediterranean coast of Egypt in 1874 (Monterosato Di 1878), and has since become well established throughout the eastern Mediterranean (Zenetos et al. 2004) and Sicily (De Natale 1982). In Tunisia, this species was firstly recorded in 1890 in Gabès harbour and off Jerba (Zenetos et al. 2004). It later spread throughout the gulf of Gabès (Seurat 1929), Kekennah Islands (Tlig-Zouari and Zaouali 1994), and the lagoon of Tunis (Diawara et al. 2008). This is the first record of the species in the Ghar El Melh lagoon, where it was found attached to *Pinna nobilis* Linnaeus, 1758 shells and *C. nodosa* rhizomes, or buried in the sediment. Its establishment may contribute to local artisanal fisheries, as happened with other molluscs such as *Hexaplex trunculus* (Linnaeus, 1758) and *Ruditapes decussatus* (Linnaeus, 1758).

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References

Antit M, Gofas S, Azzouna A (2007) New records of upper shore Mollusca for the Tunisian coast: newcomers or overlooked? JMBA2-Biodiversity Records (published online). http://www.mba.ac.uk/jmba/pdf/6020.pdf

Ben Souissi J, Zaouali J, Rezig M, Bradai MN, Quignard JP, Rudman B (2004) Contribution à l'étude de quelques récentes migrations d'espèces exotiques dans les eaux tunisiennes. Rapports de la Commission Internationale pour l'Exploration Scientifique de la Mer 37: 312

Ben Souissi J, Trigui El Menif N, Mahjoub MS, Mejri H, Quignard JP, Capapé C, Zaouali J (2005) On the recent occurrences of marine exotic species in the Tunisian waters. Proceedings of the Seventh International Conference on the Mediterranean Coastal Environment, MEDCOAST 05. pp 529-540

Boyer F, Simbille C (2006) About the settling of *Erosaria turdus* (Lamarck, 1810) in Mediterranean. Bollettino Malacologico 41: 9-12

Cattaneo-Vietti R, Chemello R, Giannuzzi-Savelli R (1990) Atlas of Mediterranean nudibranchs. La Conchiglia, Roma 264

De Natale A (1982) Extra- Mediterranean species of Mollusca along the southern Italian coasts. Malacologia 22: 571-580

Diawara M, Tlig-Zouari S, Rabaoui L, Ben Hassine OK (2008) Impact of management on the diversity of macrobenthic communities in Tunis north lagoon: systematics Cahiers de Biologie Marine 49: 1-16

Enzenros L, Enzenros R (2001) Untersuchungen uber das, Vorkommen mariner Mollusken in Tunesischen Gewasser Shriften sur malakozoologie-Cismar 17: 45-62

Galil BS (2008) Alien species in the Mediterranean Sea - which, when, where, why? Hydrobiologia 606 (1): 105-116 doi:10.1007/s10750-008-9342-z

Monterosato Di TA (1878) Enumerazione e sinonima delle conchiglie Mediterranee (Enumeration and synonymy of the Mediterranean Bivalves). Giornale di Scienze Naturali ed Economiche di Palermo 13: 61-115

Passamonti M (1996) Nuova segnalazione per le coste Tunisine di *Papyridea papyracea* (Gmelin, 1791) (Bivalvia: Cardidae). Bollettino Malacologico 32 (5-8): 153-156

Romdhane M S (1985) La lagune de Ghar El Melh : milieu, peuplement, exploitation. Thèse de 3ème cycle. Faculté des Sciences, Université de Tunis, 246 pp

Seurat LG (1929) La petite Pintadine du Golfe de Gabès. Bulletin des travaux publics, Station d'Aquaculture et de Pêche de Castiglione 1: 9-28

Tlig-Zouari S, Zaouali J (1994) Reproduction of *Pinctada radiata* in Kerkennah Islands (Tunisia). Marine life 4 (1): 41-45

Vassel E (1897) Sur la Pintadine du Golfe de Gabès. In Association Française pour l'Avancement des Sciences. Compte-rendu de la 25ème session, Carthage (Tunis), 1896. 2 : 458-466

Wimart-Rouseau D, Wimart-Rouseau J (2004) *Erosaria turdus* vivante à Djerba. Xenophora 105: 8-9

Zaouali J, Ben Souissi J, Stohr S, D'Udekem D'Acoz C, Ben Abdallah A (2007) Contribution à l ' étude des peuplements actuels des substrats solides de l ' étage médiolittoral de la Méditerranée méridionale. Rapports de la Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée 38: 639

Zenetos A, Gofas S, Ruso G, Templado J (2004) CIESM Atlas of Exotic Species in the Mediterranean. Vol. 3. Molluscs. In: F. Briand (ed). CIESM Publishers, Monaco, 376 pp

Zenetos A, Meriç E, Verlaque M, Galli P, Boudouresque C F, Giangrande A, Çinar Me, Bilecenoglu M (2008) Additions to the annotated list of marine alien biota in the Mediterranean with special emphasis on Foraminifera and Parasites. Mediterranean Marine Science 9, 1: 119-165