

# First record of *Aplysia dactylomela* (Opisthobranchia: Aplysiidae) from the Egadi Islands (western Sicily)

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*The alien mollusc Aplysia dactylomela is recorded for the first time from the Egadi Islands marine protected area (western Sicily). This species has been widely reported in the Mediterranean and has established populations in Sicily. The presence of a few specimens let us suppose that its occurrence in this area is a recent event and that soon new populations will be sighted in the whole Egadi Islands and on the western and southern coasts of Sicily.*

**Keywords:** Mediterranean Sea, western Sicily, Egadi Islands marine protected area, biological invasions, Mollusca, *Aplysia dactylomela*

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## INTRODUCTION

*Aplysia dactylomela* Rang, 1828 is a large yellowish-brownish opisthobranch with black rings and a reticulation. Until recently, it was known to be distributed worldwide in tropical and warm temperate waters (e.g. Bebbington, 1977; Wirtz, 1999; Dekker & Orlin, 2000; Ortea *et al.*, 2001; Burn, 2006). However, a recent molecular study showed that the Indo-Pacific populations may belong to another morphologically similar species, *Aplysia argus* (Rüppel & Leuckart, 1828) (Alexander & Valdés, 2013). The species, considered an alien in the Mediterranean, was first recorded in the Mediterranean Sea, from the Island of Lampedusa (AG), Sicily Channel (Trainito, 2003). The actual distribution of *A. dactylomela* is restricted to the central and eastern Mediterranean (Pasternak & Galil, 2010; Crocetta *et al.*, 2013), thus suggesting it to be of Indo-Pacific origin (Yokes, 2006; Crocetta & Galil, 2012; Kout, 2012; Pirkenseer, 2013).

However, the molecular studies conducted on the Mediterranean specimens revealed that in the Mediterranean there is only *A. dactylomela*, originating from the Atlantic (Valdés *et al.*, 2013). At present it remains still unresolved if the introduction of *A. dactylomela* has been a human-mediated or a natural event, even though the second hypothesis seems to be the more likely (Valdés *et al.*, 2013) thereby changing its status from alien to new comer. Sicilian records of this species include till now the eastern Sicilian shores from Messina to Syracuse (see Table 1).

## RESULTS AND DISCUSSION

A total of 18 specimens were found along the coasts of the Island of Favignana (Egadi Islands marine protected area, western Sicily) in July 2013 (Figure 1; Table 2). At first, two specimens of *Aplysia dactylomela* were recorded at Cala Monaci, on the southern coast of the Island (Figure 2). One specimen was found at a depth of 75 cm on a rocky shore characterized by high sedimentation and

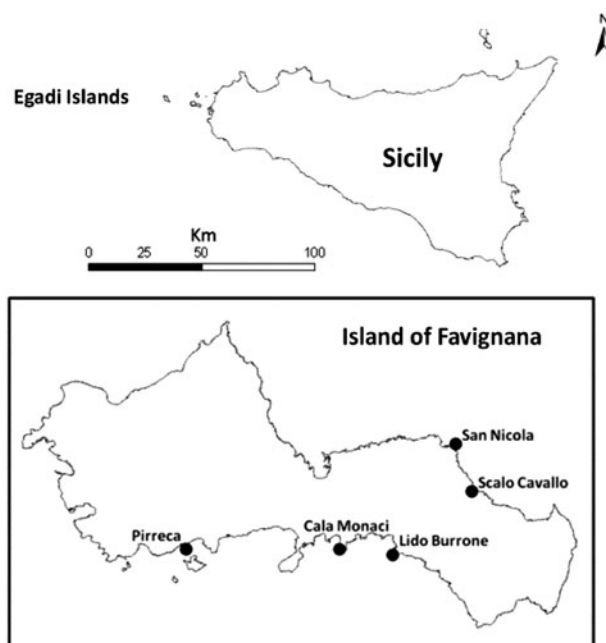


Fig. 1. Map showing the records of *Aplysia dactylomela* in the Island of Favignana.

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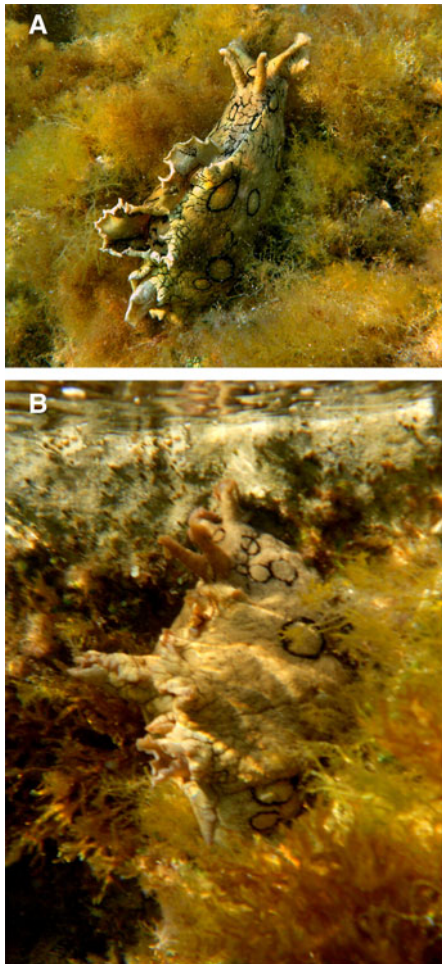
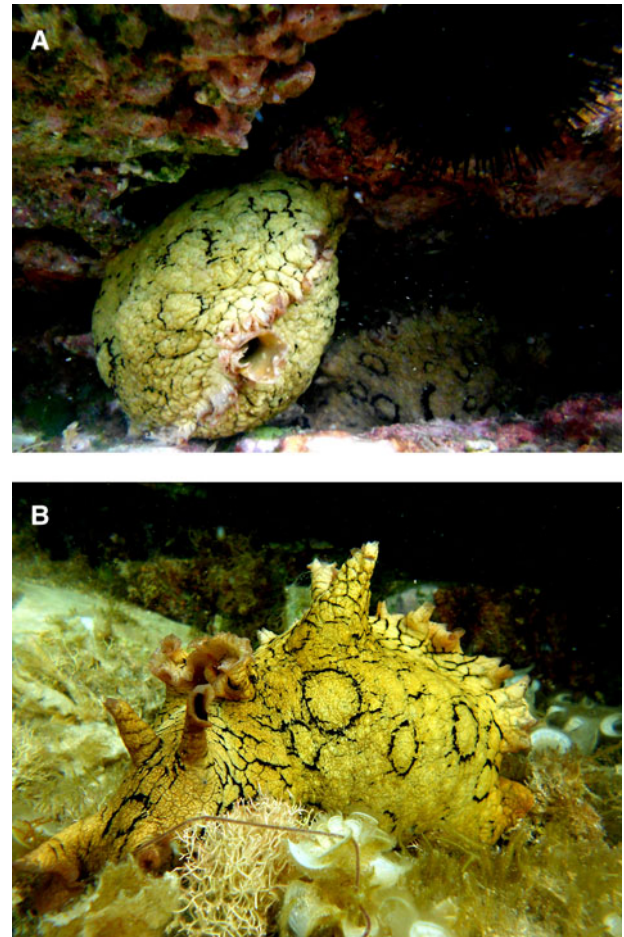
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**Table 1.** Records of *Aplysia dactylomela* in Sicily.

Site	Record coordinates	References
Island of Lampedusa	35°31'24"N 12°35'24"E	Trainito, 2003
Acitrezza, Catania	37°33'58"N 15°09'53"E	Scuderi & Russo, 2005
Giardini Naxos	37°49'32"N 15°16'20"E	Greco, 2006
From Messina to Syracuse	37°10'36"–38°13'47"N 15°16'12"–15°35'58"E	Crocetta & Colamonaco, 2008
Strait of Messina	38°12'29"N 15°38'08"E	Crocetta <i>et al.</i> 2009
Island of Lampedusa, Island of Pantelleria, Messina	–	Crocetta & Galil, 2012

**Table 2.** Records of *Aplysia dactylomela* in the Egadi Islands.

Island	Sites	Coordinates	Specimen number	Substrate	Depth (m)	Length (cm)
Favignana	Cala Monaci	37°55'7.14"N 12°19'32.67"E	3	Rocky with algae or bare rock	0–0.75	35
	Cala Pirreca	37°55'4.48"N 12°18'3.07"E– 37°55'5.62"N 12°18'2.31"E	11	Rocky with algae	1.0	35
		Scalo San Nicola	37°56'7.34"N 12°20'48.13"E	2	Rocky with algae	0.30
	Scalo Cavallo	37°55'54.13"N 12°20'58.38"E	1	Rocky with algae	0.15	30
	Lido Burrone	37°55'2.79"N 12°20'15.72"E	1	Rocky and sandy	1.5	6
Marettimo	Scalo Vecchio	37°58'9.73"N 12°4'21.42"E	3	Rocky with algae	5.0	20

**Fig. 2.** *Aplysia dactylomela* from Cala Monaci (Island of Favignana): (A) specimen (35 cm length) feeding on algae; (B) specimen (35 cm length) resting on algae.**Fig. 3.** *Aplysia dactylomela* from Cala Pirreca (Island of Favignana): (A) specimen (35 cm length) at rest; (B) specimen (35 cm length) feeding on algae.

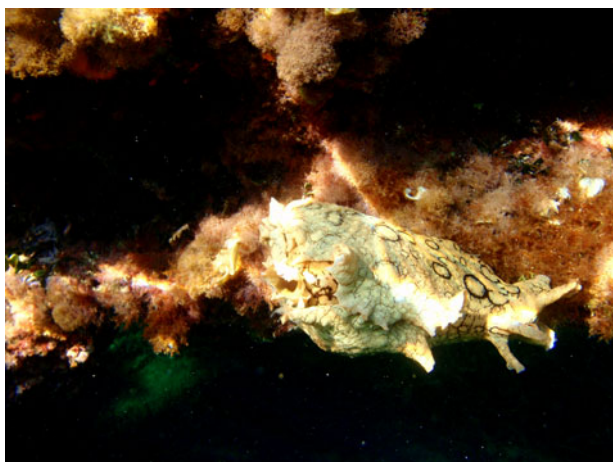


Fig. 4. *Aplysia dactylomela*: specimen (20 cm length) from Scalo San Nicola (Island of Favignana) (photograph by Alessandro Bevilacqua).



Fig. 5. *Aplysia dactylomela*: specimen (20 cm length) from the Island of Marettimo (photograph by Stefano Melchioni).

irradiance and was feeding on algae, mainly Dictyotaceae and *Laurencia* sp. It was also observed on the fronds of *Caulerpa racemosa* var. *cylindracea* (Sonder) Verlaque, Huisman & Boudouresque.

The other specimen was recorded, not far from the first one, at a 0 m water depth, resting on a bare rock. Afterwards the sea hare was sighted in different localities of the Island along both the southern and the north-eastern coast (Figures 1, 3–4; Table 2). Furthermore, in August three specimens of *A. dactylomela* were recorded in the Island of Marettimo, the furthest Island of the Egadi Islands, at Scalo Vecchio. The specimens, approximately 20 cm long, were found at a depth of 5 m on a rocky shore on *C. racemosa* var. *cylindracea* (Figure 5; Table 2).

As the Egadi Islands are highly frequented by tourists and divers, it is unlikely that such a large and slow mollusc had not been seen before. Therefore, we may suppose that its presence along the coasts of the Egadi Islands is a recent event. As the closest established populations are those on the Islands of Lampedusa and Malta (Schembri, 2008) and on the eastern coast of Sicily, *A. dactylomela* might have been dispersed naturally with veliger larvae carried by the current or by marine traffic. Specimens are generally found

feeding on algae, and we know that *A. dactylomela* is able to convert secondary metabolites from algae into chemical deterrents (Bezerra *et al.*, 2004; Kamio *et al.*, 2010). The ability to make itself protected by local predators might facilitate and accelerate the establishment and expansion of this alien species. It is likely that soon new populations will be sighted in the whole Egadi Islands and on the western and southern coasts of Sicily.

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