

First record of *Chromodoris annulata* Eliot, 1904 (Mollusca: Chromodorididae) in the Syrian marine waters

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□ ABSTRACT □

Chromodoris annulata Eliot, 1904 is an Opisthobranch species indigenous to the Indian Ocean, and is common along the eastern African coast and the Red Sea. In the present paper, the first record of *Chromodoris annulata* (Mollusca: Chromodorididae) from the Mediterranean coasts of Syria is reported. The specimen was photographed and caught on shallow rocky habitat in the Syrian marine waters (Tartous) during a permanent ichthyologic survey on 7th February 2020.

Keywords: Mollusca, *Chromodoris annulata*, Syrian marine waters, Syria, Tartous.

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أول تسجيل للرخوي *Chromodoris annulata* Eliot, 1904 (Mollusca: Chromodorididae) في المياه البحرية السورية

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□ ملخص □

يعد النوع الرخوي *Chromodoris annulata* Eliot, 1904 أحد الأنواع التي تعيش في المحيط الهادي، كما أنه شائع على طول الشاطئ الشرقي للقارة الإفريقية وفي البحر الأحمر. سجل في هذا البحث للمرة الأولى في المياه البحرية السورية الرخوي *Chromodoris annulata* (Mollusca: Chromodoridae). أخذت صورة لهذا الرخوي في مكان وجوده الطبيعي على قاع صخري ضحل من المياه البحرية لمحافظة طرطوس ثم اصطبغت بتاريخ 7 شباط 2020، وذلك ضمن خطة مسح شامل ومستمر للأنواع السمكية في المياه البحرية السورية.

الكلمات المفتاحية: الرخويات ، *Chromodoris annulata* ، المياه البحرية السورية، طرطوس.

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Introduction:

The opening of the Suez Canal in 1869 has resulted in physical, chemical and biological changes of the Mediterranean Sea, and allowed the migration, termed Lessepsian, of hundreds of Red sea species that have become established in the Eastern Mediterranean, primarily along the Levantine coasts. It has been shown that 212 alien Mollusca species were listed from the Mediterranean Sea (Zenetos *et al.*, 2010).

Chromodoris annulata Eliot, 1904 is an Opisthobranch species indigenous to the Indian Ocean, and common along the east African coast and the Red Sea (Rudman 1987; Yonow 1989, 2008). It was agreed that the most probable pathway for *C. annulata* into the Mediterranean, like previously recorded Lessepsian alien opisthobranchs, is through the Suez Canal (Yokeş and Rudman 2004).

The first occurrence of *C. annulata* in the Mediterranean was noted in August 2004, when a single specimen was collected from a rock pool in Salamina Island, Gulf of Saronikos, Greece (Daskos and Zenetos, 2007). In 2008, a single specimen of *C. annulata* was found in Beldibi, Antalya, on the Mediterranean coast of Turkey (Gökoglu and Özgür, 2008). One year later, three specimens were collected in Çevlik Harbor, on the southeastern coast of Turkey (Yokeş *et al.*, 2009). Additionally, eleven specimens were collected during surveys in the Gulf of Iskenderun and its vicinity between June 2008 and December 2009, (Çevik and Ergüden 2008; Özcan *et al.*, 2010). In 2009, it was also reported from Dhekelia, Larnaca, Cyprus (Tsiakkios, 2010). Recently, in 2019, it was reported at the intertidal zone of the Mersin Bay (Ayas and Akbora, 2020).

In the present paper, we report for the first time the presence of *Chromodoris annulata* in the Syrian marine waters (Eastern Mediterranean).

Materials and Methods:

During permanent ichthyologic surveys to identify the Lessepsian alien species in the Syrian marine waters (Tartous coast), a single specimen of *Chromodoris annulata* was found on 7th February 2020 on a rocky habitat. A photograph of *C. annulata* was taken by plunger at 8–10 m depth from the coasts of Tartous city near Arwad island, at the mid-eastern coast of the Mediterranean (34°51'59"N-35°51'17"E) (Fig. 1).

Results and discussion:

We report in the present study for the first time in the Syrian marine waters, an Opisthobranch species *Chromodoris annulata* (Mollusca: Chromodorididae) (Fig. 2). This specimen is 50 mm in length and had purple ring around the gills and the rhinophores and many yellow spots over the body. This color of *C. annulata* is similar to that reported from the Red Sea specimens (Yonow, 1989; Mannak, 2007; Mrutzel, 2005; El Tawil, 2007). This specimen constitutes the first record of *C. annulata* off the Mediterranean coast of Syria.



Figure1. Specimen collection Site (Tartous, Syrian coast, eastern Mediterranean).



Figure2. *Chromodoris annulata* Eliot, 1904. Photographed in situ, Tartuos coast; Arwad Island, 7th February 2020. (Photograph by Taleb Hazouri).

This record of *C. annulata* is considered as a recent addition to the fast expanding list of alien species off the Syrian coast and adds an additional species to the Mollusc checklist of the Syrian marine waters. It also confirms that the changes in the environmental conditions of the Mediterranean ecosystem facilitate species introduction through the Suez Canal. However, despite the presence of this individual, more studies should be conducted to verify whether this species had established itself in the marine water of Syria. Finally, more long-term studies are needed to establish a comprehensive picture of the alien species in the Mediterranean Sea, especially in the eastern coast.

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