

LESSEPSIAN OPISTHOBRANCHS FROM SOUTHWESTERN COAST OF TURKEY; FIVE NEW RECORDS FOR MEDITERRANEAN

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Abstract

The opisthobranchs from the southwestern coast of Turkey were studied by diving. The species are either collected or photographed. Ten lessepsian species have been identified, with five new records for the Mediterranean, and four new records for Turkey. The observation of *Hypselodoris infucata* in Fethiye extends its distribution range westward on the Turkish coast.

Key words: *Lessepsian, Opisthobranch, Turkey*

The Indo-West Pacific (IWP) originated gastropods from Turkey are well studied and some lessepsian opisthobranchs have already been reported (1). The lack of shell makes it difficult to trace the presence of opisthobranchs, unless specimens are observed or collected alive in their habitat. Exotic opisthobranch species from the southwestern coast of Turkey, between Bodrum and Tekirova, were identified from living specimens or from photographs. Of the ten lessepsians identified, *Haminoea cyanomarginata*, *Oxynoe viridis*, *Elysia grandifolia*, *Elysia tomentosa*, *Syphonota geographica* are new records for the Mediterranean. *Bulla ampulla*, *Plocamopherus ocellatus*, *Melibe viridis* and *Flabellina rubrolineata* are new records for Turkey. The observation of *Hypselodoris infucata* in Fethiye extends its westernmost limit on the Turkish coast. Photographs and identifications have been verified on the Sea Slug Forum (<http://www.seaslugforum.net>).

Haminoea cyanomarginata Heller & Thompson, 1983

Material photographed: Uc Adalar: 15m, July 2002; 24m, September 2003; Cesme: 15m, September 2002; all on rocky habitat.

Remarks. *Haminoea cyanomarginata* was described from the Sudanese Red Sea, the only known record for IWP (2). Another record from Greece is in press (3). Its abundance suggests that it has a wide distribution on the southwestern coast of Turkey (4).

Bulla ampulla Linnaeus, 1758

Material collected: Uc Adalar: 18m, sediment from *Cymodocea nodosa* field, May 2001; 22m, sediment from *Halophila stipulacea* field, September 2003.

Remarks. Living animals have not been observed, but three shells were collected, which are new records for Turkey.

Oxynoe viridis (Pease, 1861)

Material photographed: Uc Adalar, 6m, April 2002; Tekirova, 8m, September 2002.

Remarks. *Oxynoe viridis* is variable in colour in IWP, but all Turkish specimens had a yellowish body covered with blue spots. It is rarely, but always observed on *Caulerpa* species (5).

Elysia grandifolia Kelaart, 1858

Material photographed: Uc Adalar: 5m, September 2001; 7m, August 2003.

Remarks. Both *Elysia ornata* (Swainson, 1840) and *E. grandifolia* have almost identical colouration, but *Elysia grandifolia* is larger, 10 cm or more, its parapodia are large and thin, the black and orange bands at the edge of the parapodia are not separated by white. Some authors consider them as conspecific, but more anatomical study is needed to clarify the relation. Due to body size and parapodial structure, the Turkish individuals are classified as *Elysia grandifolia* (6). Rare, always on rocky habitat, more common in Lebanon (Jose Templado, pers. comm.).

Elysia tomentosa Jensen, 1997

Material photographed: Uc Adalar: 6m, September, 2001; 20m, April 2002; 18m, October 2002; 24m, September, 2003; Tekirova, 10m, September 2002.

Remarks. Olive green, more or less covered with tiny yellowish white dots. Body extremely papillose, almost invisible in its habitat. Common, always on *Caulerpa racemosa* (7).

Syphonota geographica (Adams & Reeve, 1850)

Material photographed: Fethiye, 10 m, on sand, December 2002; Uc Adalar, 27m, on *Caulerpa prolifera*, May 2003.

Remarks. *Syphonota geographica* can be distinguished from species of *Aplysia* by the position of the rhinophores, close together and set back between the parapodial lobes. Rarely observed on seagrass beds on the southwestern coast of Turkey, its distribution range may be extended to as far as Italy (8).

Plocamopherus ocellatus Ruppell & Leuckart, 1828

Material photographed: Kas, 10m, on rocky habitat, August 1998.

Remarks. The unique colouration distinguishes this species from Mediterranean congeners. The single specimen recorded here is the third

Mediterranean record, the others being from Israel (9) and Lebanon (10). For photographs and discussion see ref. 11.

Hypselodoris infucata Ruppell & Leuckart, 1830 or 1831

Material photographed: Fethiye: 12m, rocky habitat, June 2000.

Remarks. Previously reported from Iskenderun Bay, southeastern Turkey (12, 13).

Melibe viridis Kelaart, 1858

Material photographed: Kas: 7m, June 2000; Tekirova: 6m, on sand, August 2001.

Remarks. Seemingly well established on the Levantine basin, but never reported from Turkey before (14). Rarely observed in shallow water on muddy sand (15).

Flabellina rubrolineata (O'Donoghue, 1929)

Material photographed: Always on hydroids. Uc Adalar: 20m, July 2001; 8m, September 2002; Kas: 18m, September 2002; Bodrum: 10m, on rocky habitat, August 2003.

Remarks. Only a single specimen has been previously reported from Israel (16). It is the most abundant *Flabellina* species observed on hydroid colonies (*Eudendrium* sp.). See ref. 17 for photographs and discussion.

Acknowledgment. Thanks to Adnan Buyuk, Ferda Buyukbaykal, Nazmi Kural and Orhan Aytur for photographic data; Kathe Jensen, Jose Templado and Angel Valdés for scientific advice. Study partially funded by WWF-Turkey.

References

- 1 - Ozturk, B., Onen, M., Dogan, A. and Urkmez, D., 2002. The lessepsian molluscs of the Mediterranean and their distribution along the Turkish coasts. Pp. 62-70. In: Ozturk, B., & Basusta, N. (eds.), Workshop on Lessepsian Migration Proceedings, Turkish Marine Research Foundation Publ.: 9, Istanbul.
- 2 - Heller & Thompson, T.E. 1983 Opisthobranch molluscs of the Sudanese Red Sea. *Zoological Journal of the Linnean Society*, 78(4): 317-348.
- 3 - Zenetos, A., Gofas, S., Russo, G., Templado, J. 2003. CIESM Atlas of exotic species in the Mediterranean, Vol. 3. Molluscs. CIESM, Monaco, 376 p.
- 4 - Rudman, W.B., 2003 (January 3) *Haminoea cyanomarginata* Heller & Thompson, 1983. *Sea Slug Forum*. <http://www.seaslugforum.net/hamicyan.htm>
- 5 - Rudman, W. B., 1999 (July 12) *Oxynoe viridis* (Pease, 1861). *Sea Slug Forum*. <http://www.seaslugforum.net/oxynviri.htm>
- 6 - Rudman, W.B., 2001 (November 19). *Elysia grandifolia* Kelaart, 1858. *Sea Slug Forum*. <http://www.seaslugforum.net/elysgran.htm>
- 7 - Rudman, W.B., 2003 (July 23). *Elysia tomentosa* Jensen, 1997. *Sea Slug Forum*. <http://www.seaslugforum.net/elysgran.htm>
- 8 - Rudman, W.B., 1999 (May 26). *Syphonota geographica* (Adams & Reeve, 1850). *Sea Slug Forum*. <http://www.seaslugforum.net/syphgeog.htm>
- 9 - Barash, A. and Danin, Z., 1982. Mediterranean Mollusca of Israel and Sinai: composition and distribution. *Israel Journal of Zoology*, 31: 86-118.
- 10 - Valdés, A. & Templado, J. 2002. Indo-Pacific dorid nudibranchs collected in Lebanon (eastern Mediterranean). *Iberus* 20 (2): 23-30.
- 11 - Rudman, W.B., 2002 (November 27). Comment on *Plocamopherus ocellatus* from Turkey by Erwin Koehler. *Sea Slug Forum*. <http://www.seaslugforum.net/find.cfm?id=8516>
- 12 - Çevik, C., Ozturk, B., 2001. A new lessepsian mollusc *Hypselodoris infucata* (Ruppell & Leuckart, 1828) (Gastropoda: Nudibranchia) for the coasts of Turkey. *Turkish journal of Zoology*, 25, p. 27-30.
- 13 - Rudman, W.B., 2003 (Feb 11). Comment on *Hypselodoris infucata* from the Mediterranean Sea by Orhan Aytur. *Sea Slug Forum*. <http://www.seaslugforum.net/find.cfm?id=9145>
- 14 - Thompson T.E. and Crampton D.M., 1984. Biology of *Melibe fimbriata*, a conspicuous opisthobranch mollusc of the Indian Ocean, which has now invaded the Mediterranean Sea. *Journal of Molluscan Studies*, 50: 113-121.
- 15 - Rudman, W.B., 1999 (January 7) *Melibe viridis* Kelaart, 1858. *Sea Slug Forum*. <http://www.seaslugforum.net/meliviri.htm>
- 16 - Gat, G., 1993. *Flabellina rubrolineata* (O'Donoghue) and *Phidiana indica* (Bergh) (Nudibranchia Aeolidioidea), two new Lessepsian immigrants in the Eastern Mediterranean. *Journal of Molluscan Studies*, 59: 120.
- 17 - Rudman, W.B., 1998 (January 9) *Flabellina rubrolineata* (O'Donoghue, 1929). *Sea Slug Forum*. <http://www.seaslugforum.net/flabrubr.htm>