GREEN FLUORESCENCE IN YOUNG INDIVIDUAL(S) OF CUBOMEDA, SCYPHOMEDA AND CTENOPHORA

By

Shin KUBOTA

Abstract

Green fluorescence is found in young individual(s) of cubomedusa (possibly Carybdea rastoni) and ctenophora (Haeckelia rubra and possibly Beroe cucumis), while it is not found in ephyrae of scyphomedusa (possibly Aurelia aurita).

Introduction

Based on epi-fluorescence microscopic observations of small hydromedusae together with eudoxid of siphonophora, 16 green fluorescence distribution patterns have been reported (Kubota et al. 2008, 2009; Kubota 2010, 2011). In the present paper, green-fluorescence presence in young individual(s) of cubomedusa (one species) and ctenophora (two species), that are hitherto been unreported, are shown with photographs together with non-fluorescence in ephyrae of scyphomedusa (one species).

Materials and methods

By towing a small plankton net vertically and/or horizontally in bays or by hand-scooping from the seawater, young individual(s) of cubomedusa (possibly newly liberated medusa of Carybdea rastoni), scyphomedusa (possibly Aurelia aurita ephyrae) and ctenophora (Haeckelia rubra and possibly Beroe cucumis) were collected at Shirahama, Wakayama Prefecture, Japan in 2008 (only possible C. rastoni) and 2010 (other three species), and ephyrae of scyphomedusa (possibly Aurelia aurita) were in Suma, Kobe, Japan in 2010.

Each individual living specimen was placed in a depression slide glass and its fluorescence distribution pattern was observed under a epi-fluorescence microscope (Nikon ECLIPSE 80i, Japan) with blue light excitation (using the B-2A filter set). Photographs are shown as fluorescence images superimposed on transmission images of the same individual(s).
Results and Discussion

Presence or absence of green fluorescence in each of four species is listed below and are shown in Plate 1.

Exumbrella + subumbrella + tentacles [+] : possibly Carybdea rastoni (Plate 1 A, B; n = 5).
Umbrella + meridional canals [+ ?]: Haecelina rubra (Plate 1 C-E; n = 1).
Meridional canals: possibly Beroe cucumis (Plate 1 F, G; n = 1).
Non-fluorescent: ephyrae of possibly Aurelia aurita (Plate 1 H; n = 12).

As to Carybdea rastoni (Plate 1 A, B) and Haecelina rubra (Plate 1 C-E), much more detailed studies are needful to clarify presence or absence of fluorescence on other body parts than umbrella and tentacles, therefore in the above two fluorescence pattern, [+ ?] is added for this possibility. No fluorescence was observed in a pair of tentacles of Haecelina rubra (Plate 1 D, E) and whole body of ephyrae of possibly Aurelia aurita (Plate 1 H).

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References

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Explanation of plate 1

Figures A-H: Green fluorescence (fluorescence images superimposed on transmission images of the same individual except A, C, F) in young individual(s) of cubomedusa (possibly *Carybdea rastoni* from Shirahama: A, B), ctenophora (*Haeckelia rubra* from Shirahama [1.32 mm in length]: C-E; possibly *Beroe cucumis* from Suma [8 mm in length]: F, G), and in ephyrae of scyphomedusa (possibly *Aurelia aurita* from Suma: H).