

GREEN FLUORESCENCE IN YOUNG INDIVIDUAL(S) OF CUBOMEDUSA, SCYPHOMEDUSA AND CTENOPHORA

By

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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).

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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 [+ ?]: *Haeckelia 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 *Haeckelia 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 *Haeckelia rubra* (Plate 1 D, E) and whole body of ephyrae of possibly *Aurelia aurita* (Plate 1 H).

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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).

