

**A Study on Olive Shells – 2:
Oliva hirasei Kuroda & Habe, 1952, and Its New Subspecies
from Pangandaran Bay, Java, Indonesia**

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INTRODUCTION

The number of *Oliva* species varies continuously from one author to another. There is perhaps no other gastropod group where the uncertainty of the synonymy is proportional to the beauty of the shells. Whoever studies olives and finds something neglected in the monographs on the genus should pause for a while and then carefully reflect. Is what one has in hand a new species or subspecies, or just a color form or variety already described elsewhere?

During the last five years, a few dealers offered a total of about thirty noteworthy specimens of *Oliva hirasei* Kuroda & Habe, 1952. Such specimens share two features. They have a bright purple aperture, very different from the off white aperture of the species. They come from Pangandaran Bay, S.W. Java, Indonesia, a locality outside the acknowledged distribution range of *O. hirasei*.

The availability of 17 specimens for direct analysis made it apparent that these shells differ from the typical *O. hirasei* also for other morphometric and morphological characters. So far, the evidence is strong enough to distinguish between *O. hirasei hirasei* and a new, geographically secluded new subspecies, *O. hirasei ameliae*.

Historical background

Several common and bathymetrically accessible Olives had to wait until the 20th century to gain the specialist's attention. The case of *O. hirasei* is noteworthy because, in addition to its wide distribution and present availability, the species is of medium size and relatively constant in shape, color and pattern.

The study of pre-20th-century sources confirms that no specimen of *O. hirasei* had therein been described under another name. The first figured specimen appeared in 1909, in one of Yoichiro Hirase's bilingual articles on the mollusks of Japan [Hirase, 1909: pl. 4, fig. 26] (**Figure 1a**). Hirase guessed that this "Kuchijiro-makura" from the Okinawa islands could be a variety of *O. irisans* Lamarck, 1811. He also remarked: "Somewhat this resembles *O. scripta* Lam., but not exact" [*Ibid.*: 15]. A short description and comparisons with "Judou-makura" — called *O. irisans*, but being *O. miniacea miniacea* (Röding, 1798) — and "Numeri-makura" — the true *O. irisans* — were placed in the Japanese section of the article [*Ibid.*: 46].

The name *O. hirasei* was coined by Tokubei Kuroda and Tadashige Habe in their *Check List* of the marine mollusks of Japan. In 1952, the two authors acknowledged that the shell was the same described by Hirase, made explicit reference to his figure of 1909, and implicitly dedicated the new species to his memory [Kuroda & Habe, 1952: 74].

Two years later, Tetsuaki Kira published the first edition of his *Coloured Illustrations of the Shells of Japan*. The volume included a new description of “Kuchijiro-makura”, or “*O. hirasei* Kuroda, MS”, and a new figure [Kira, 1954: 63 and pl. 31, fig. 8]. A second edition of the book was printed in 1959 and, again, included the description, the attribution to Kuroda and the figure [Kira, 1959: 80 and pl. 31, fig. 8] (**Figure 1b**). It is uncertain which of the two editions was available to John Q. Burch and Rose L. Burch. On the basis of Hirase, Kuroda and Habe, and Kira, they suggested that the new taxon, to be called *O. hirasei* Kuroda & Habe, 1952, could be a synonym of *O. tremulina* Lamarck, 1811 [Burch & Burch, 1959: 12; and 1960: 19]. In fact, before the revision of the genus *Oliva* Bruguière, 1789, by Edward J. Petuch and Dennis M. Sargent, *O. tremulina* was usually identified with the present *O. concinna* Marrat, 1870 [Zeigler & Porreca, 1969: pl. 12, figs. 1-7]. The rough similarity between orange specimens of *O. concinna oldi* Zeigler, 1969, and *O. hirasei* explains the perplexities on the past, and also why actual specimens of *O. hirasei* were taken for *O. tremulina fumosa* Marrat, 1871 [*Ibid.*: pl. 12, fig. 8].

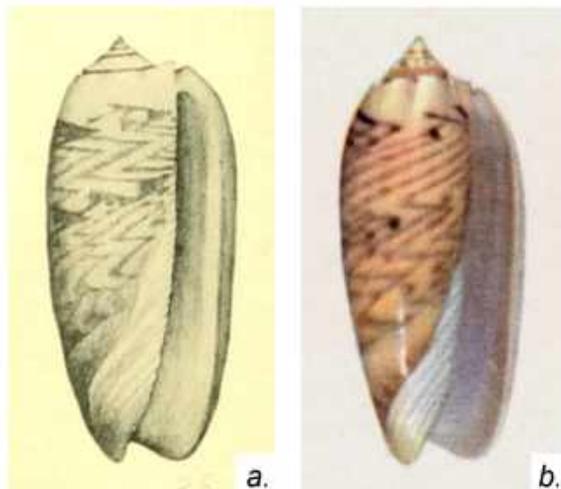


Figure 1. The Japanese shell “Kuchijiro-makura”; **a.** The first figured specimen [Hirase, 1909: pl. 4, fig. 26; from www.biodiversitylibrary.org]; **b.** The second figured specimen [Kira, 1954 and 1959: pl. 31, fig. 8].

Even if the shell was successively neglected, or perhaps considered a Japanese form of alleged *O. scripta* Lamarck, 1811 [Burch & Burch, 1967: 516], Rowland F. Zeigler and Humbert C. Porreca stated that *O. hirasei* was a valid species. In 1969, they outlined that “apparently there is no written description of the shell by Kuroda and Habe”. Kira had to be credited for the first description in 1959, and “Kuroda, MS”, could represent an incomplete reference to Kuroda and Habe. As a consequence, they coined the name: *O. hirasei* “Kuroda & Habe, 1952” Kira, 1959 [*Ibid.*: 71], and paved the way to further errors. On the one hand, Petuch and Sargent split the name into *O. hirasei* Kuroda and Habe, 1952 [Petuch & Sargent, 1986: 248] and *O. hirasei* Kira, 1959 [*Ibid.*: 52, 92 and 181]. On the other hand, Bernard Tursch and Dietmar Greifeneder made unsound inferences. First: Kuroda and Habe did not describe the species. Therefore, according to the ICZN, Art. 13.1.1, *O. hirasei* Kuroda & Habe, 1952, was a *nomen nudum*. Second: the attribution of *O. hirasei* to “Kuroda, MS” possibly referred to a description by Kuroda in Kira’s journal *Yume-hamaguri*. According to the ICZN, Art. 9.1, “after 1930 handwriting reproduced in facsimile by any process”—as it was the case of *Yume-hamaguri*—do not constitute publication. Therefore, Kuroda’s contribution to the taxon was irrelevant and Kira had the full merit of the first description. Third: Tursch and Greifeneder examined the 1959 second edition of the *Coloured Illustrations*, instead of the 1954 first edition. As a result, they concluded that *O. hirasei* Kira, 1959, was the name of the taxon [Tursch & Greifeneder, 1996: 23-24; and 2001: 447]. Such a name was blindly accepted in the two most recent monographs on Olive shells [Sterba, 2003: 54; Hunon, Hoarau & Robin, 2009: 106].

It is important to note that, to be available, any new name published after 1930 must be accompanied either “by a description or definition that states in words characters that are purported to differentiate the taxon” [ICZN: Art. 13.1.1], or “by a bibliographic reference to such a published statement” [ICZN: Art. 13.1.2]. When, in 1952, Kuroda and Habe cited Hirase’s figure of 1909, they inevitably included the bibliographic reference to Hirase’s bilingual description of the shell, even if it was considered a variety of *O. irisans*. In this way, they accomplished a valid taxonomical act in the spirit of the ICZN, Art. 13.1.2. Such an act makes *O. hirasei* Kuroda & Habe, 1952, the correct name of the taxon [Rüdiger & Petit, 1990: 139].

***Oliva hirasei hirasei* Kuroda & Habe, 1952**

For a better intelligibility of *O. hirasei ameliae*, new subspecies, I resume the general characters of the typical subspecies *O. hirasei hirasei*:

Description: Shell elongated, sub-cylindrical. Width/Height ratio $44.59 \% \pm 1.79 \%$. Nucleus formed by ca. 3.8 (usually worn) whorls. Spire very low, $6.79 \% \pm 1.54 \%$ of the shell; profile from slightly concave to sunken; from 4.5 to 5.1 whorls (body whorl included). Filament channel open. Spire/shoulder transition barely telescopic. Aperture narrow, very long, $91.65 \% \pm 3.29 \%$ of the shell. Parietal wall straight or slightly concave. From 22 to 38 usually well-developed plicae, rarely smoothed; sequence [see Tursch & Greifeneder, 2001: 295]: 4-11/2-6/1-5/11-21. Shell’s overall color cream. Sub-channel pattern formed by faint irregular marks which may develop into a continuous dark line. Pattern-less spire callus, tan. Body-whorl pattern formed by a broad, regular reticulation of brown speckles and light triangles. Pattern-less area at the shoulder. Posterior and middle bands always present, from scanty to well developed, formed by irregular brown blotches. External glaze

usually present, from yellow to tan. Post-fasciole band bipartite, posteriorly translucent and mostly pattern-less, anteriorly with dense regular brown strokes. Parietal callus from translucent towards the spire to off white around the centre. Fasciole off white. Anterior tip with a tan diffuse area. Lip from cream to tan. Aperture off white, sometimes with a bluish hue. Siphon notch white (see **Figure 2**).

Size: up to 70.2 mm; usually around 50 mm.

Type material: The 1909 figured specimen, ca. 45 mm high, belonged in Hirase’s collection, originally placed in The Hirase Conchological Museum of Kyoto. The collection was moved to the Science Museum in Ueno Park (today’s National Museum of Nature and Science), Tokyo, and survived World War II [Clench, 1948: 35]. The present existence of the figured specimen needs, however, confirmation.

Type locality: Okinawa, Ryukyu Is., S. Japan.

Distribution: S. Japan, Taiwan, Vietnam, Philippines, N. Borneo, Melanesia up to New Caledonia.

Bathymetric range: From shallow to deep water, between 2 and 160 m.

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***Oliva hirasei ameliae*, new subspecies**

For the sake of clarity, I will describe the type material of *O. hirasei ameliae*, new subspecies, along the same lines of *O. hirasei hirasei*.

Description: Shell elongated, sub-cylindrical or sub-conical. Width/Height ratio $44.12\% \pm 0.96\%$. Nucleus formed by about 3.7 (usually worn) whorls. Spire low, $7.66\% \pm 1.14\%$ of the shell; profile slightly concave; from 4.1 to 5.0 whorls. Filament channel open. Spire/shoulder transition barely telescopic. Aperture narrow, long, $88.97\% \pm 2.18\%$ of the shell. Parietal wall straight or slightly concave. From 24 to 34 well-developed plicae; sequence: 5-9/3-5/2-4/11-19. Shell's overall color ivory white. Sub-channel pattern formed by faint marks which may develop into an interrupted purple line. Pattern-less spire callus, from tan to violet. Body-whorl pattern formed by a broad, regular reticulation of brown speckles and light triangles. Pattern-less area at the shoulder. Posterior and middle bands always present, often well developed, rarely coalescing, formed by irregular brown blotches. External glaze seldom present, light yellow. Post-fasciole band bipartite, posteriorly translucent and mostly pattern-less, anteriorly with a few brown strokes. Parietal callus from translucent towards the spire to white around the centre. Fasciole white. Anterior tip with a yellow diffuse area. Lip from light cream to ivory white outside, white inside. Aperture with a broad bright purple longitudinal band. Throat white. Siphon notch violet (see **Figures 3 and 4**).

Size: up to 45.6 mm; usually around 40 mm.

Type material: Holotype: collected in 2009, 41.2 mm; Museum of Natural History "La Specola", Firenze, Italy, no. 24934 MZUF; Paratype 1: collected on May 2010, 42.0 mm, Author's research collection no. 1722; Paratypes 2 and 3: collected on August 2010, by



Figure 3. *Oliva hirasei ameliae*, new subspecies. Holotype, 41.2 mm, Pangandaran Bay, S.W. Java, Indonesia.

local fisherman, 5-10 m, 40.3 mm and 43.6 mm, A.'s res. coll. nos. 1938 and 1939; Paratype 4: collected in 2009, 44.0 mm, A.'s res. coll. no. 2608; Paratype 5: collected on September 2009, by local fisherman, 3-5 m, 37.3 mm, A.'s res. coll. no. 1907; Paratype 6: collected on January 2011, by local fisherman, 15-20 m, 38.2 mm, A.'s res. coll. no. 2770; Paratype 7: collected in 2014, 39.2 mm, A.'s res. coll. no. 2881; Paratypes 8 to 13 and 15: collected in 2014, 2-3 m, 41.2 mm, 39.9 mm, 38.7 mm, 36.9 mm, 37.9 mm, 32.5 mm and 41.5 mm, A.'s res. coll. nos. 2888 to 2893 and 2895; Specimen 1: collected in 2014, 2-3 m, 41.0 mm, Giovanni Confortini's coll., Firenze, Italy; Specimen 2: collected on September 2009, by local fisherman, 3-5 m, 45.6 mm, Cesare Brizio's coll., Poggio Renatico, Ferrara, Italy.

Type locality: Pangandaran Bay, S.W. Java, Indonesia.

Distribution: Restricted to the type locality.

Bathymetric range: Shallow water, between 2 and 20 m.

Etymology: It would not be fair to dedicate a mere subspecies to a scholar. In addition, too many people were involved in the gathering of the type material. Therefore, I humbly dedicate the new subspecies to my niece, Amelia Strano. I hope that, in due time, the dedication might inspire her to study the genus *Oliva*. The new name is not a homonym of *Oliva amelia* Duclos, 1845, which is a fossil *Olivella* Swainson, 1831, and, as such, it does not belong in the family *Olividae* Latreille, 1825, but in the family *Olivellidae* Troschel, 1869 [see Duclos, 1844-1845, pl. 36, figs. 1-2].

DISCUSSION

At first sight, *O. hirasei ameliae*, new subspecies, resembles *O. hirasei hirasei* Kuroda & Habe, 1952, and rarely *O. pacifica* Marrat, 1870. The morphometric analysis suggests that *O. h. ameliae* and *O. h. hirasei* are similar, the first being a less developed morph of the second (**Table 1**). In particular, the distal (from top of protoconch to anterior end of lip) and ab-axial (maximum width) growth factors are $Lk = 1.258 \pm 0.020$ and $Lw = 1.886 \pm 0.065$ for *O. h. ameliae*, and $Lk = 1.223 \pm 0.036$ and $Lw = 1.970 \pm 0.106$ for *O. h. hirasei*. The plot graph of these factors reveals that *O. h. ameliae*, does not escape the continuum of *O. h. hirasei*. Nevertheless, being more slender, it occupies a marginal area of the continuum, a fact which justifies the sub-specific status. To emphasize the significance of the data, the graph includes *O. pacifica*, whose growth factors are $Lk = 1.243 \pm 0.023$ and $Lw = 1.609 \pm 0.065$ (**Figure 5**).

The primary morphological character which separates the two subspecies is the color of the aperture. Adults and sub-adults of *O. h. hirasei* always display an off white aperture, which may occasionally present a bluish hue. Adults of *O. h. ameliae* always display a bright purple aperture, which is paler in the sub-adults. The purple tint is not uniformly distributed from the lip to the throat, as in *O. pacifica*, but restricted to a longitudinal band, as in *O. coerulea* (Röding, 1798) and in *O. emeliodina* Duclos, 1845. Differently from those two, the tint of the aperture slightly affects the siphon notch of *O. h. ameliae*.

There are other morphological differences. The shells of *O. h. ameliae* display a light-colored lip and an ivory body-whorl background. They usually lack the yellow, orange or tan glaze of *O. h. hirasei*. For such a reason, in dorsal view, *O. h. ameliae* may look similar to small specimens of *O. pacifica*. Finally, the anterior half of the post-fasciole band of *O. h. ameliae* displays a few brown strokes instead of the dense brown strokes of *O. h. hirasei* (**Figure 6**).

Up to the present, *O. h. ameliae* is only found in the Pangandaran Bay, S.W. Java, Indonesia. This locality is outside the acknowledged distribution range of *O. h. hirasei*. The distinct geographic isolation of this Indonesian olive supports its description as a new subspecies.

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Regrettably, for the sake of brevity, I cannot explain here the theory and practice of the distal and ab-axial growth factors. As such factors appear useful to the study of Olives and, in prospects, of other shell genera, I will soon dedicate another article to this topic.

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	NW	TW	W/H (%)	Lk	Lw	Plicae (means)
<i>O. h. hirasei</i>	ca. 3.8	4.87 ± 0.17	44.59 ± 1.79	1.223 ± 0.036	1.970 ± 0.106	7.2/3.5/3.1/15.5
<i>O. h. ameliae</i>	ca. 3.7	4.54 ± 0.21	44.12 ± 0.96	1.258 ± 0.020	1.886 0.065	6.7/4.0/2.8/13.9
<i>O. pacifica</i>	ca. 4.3	5.49 ± 0.37	40.20 ± 1.82	1.243 ± 0.023	1.609 ± 0.065	5.2/2.9/1.8/10.8

Table 1. Data comparison between of *O. hirasei hirasei* Kuroda & Habe, 1952, *O. hirasei ameliae*, new subspecies, and *O. pacifica* Marrat, 1870 (NW = Nuclear whorls; TW = Teleoconch whorls; W/H = Width/High ratio; Lk = Distal growth factor; Lw = Ab-axial growth factor).



Figure 2. *Oliva hirasei hirasei* Kuroda & Habe, 1952. Specimens from: **a.** Yonaguni Is, Japan; **b.** and **c.** Kaohsiung, Taiwan; **d.** Nha Trang, Vietnam; **e.** Siasi Is., Philippines; **f.** Tara Is., Coron, Mimaró, Philippines; **g.** Marinduque, Mimaró, Philippines; **h.** Zamboanga, Philippines; **i.** N'Do Reef, Nouméa, New Caledonia.

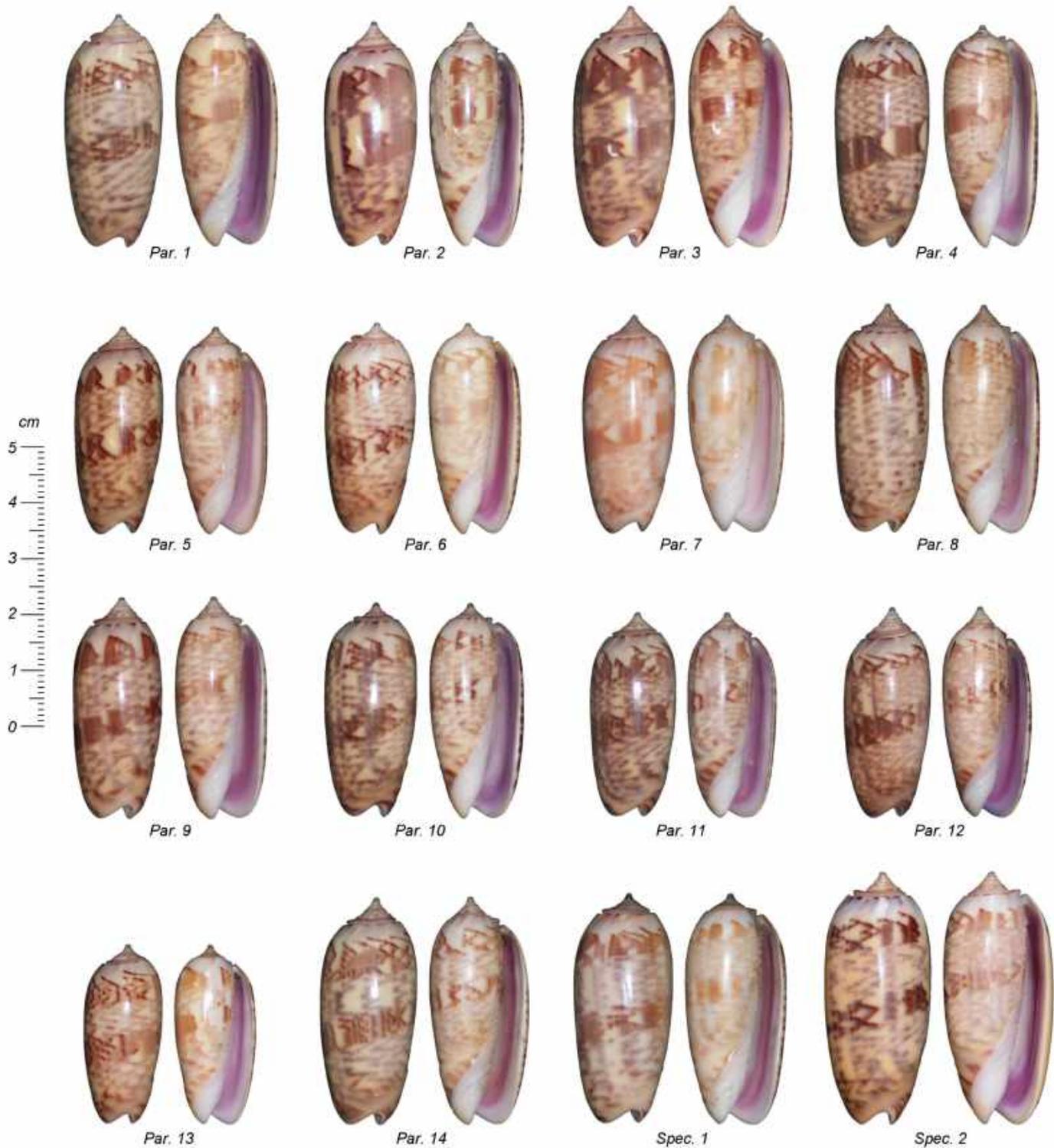


Figure 4. *Oliva hirasei ameliae*, new subspecies. Paratypes 1-13, from 32.5 mm to 44.0 mm, and additional specimens 1 and 2, 41.0 mm and 45.6 mm; Pangandaran Bay, S.W. Java, Indonesia.

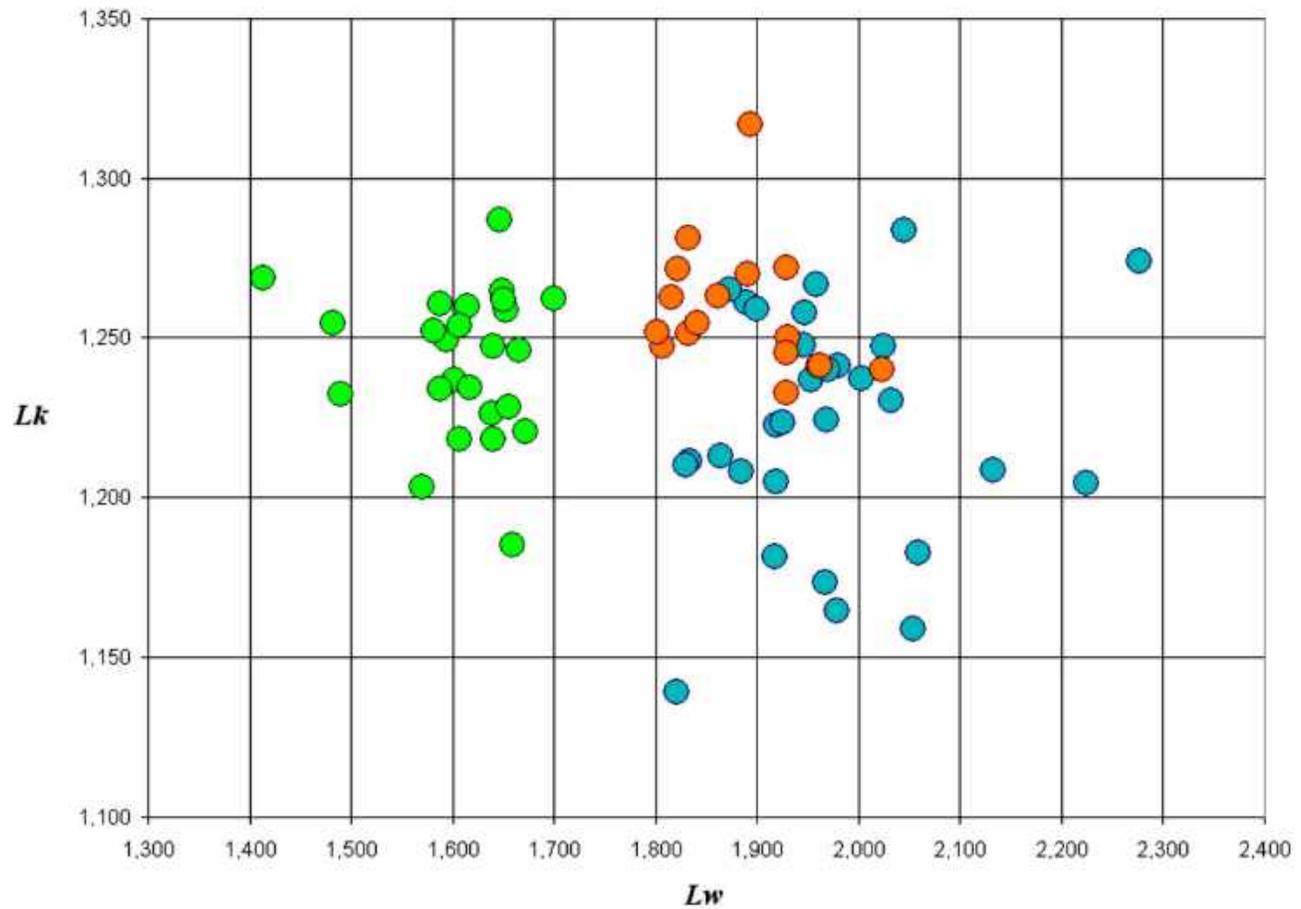


Figure 5. Plot graph of the growth factors Lw and Lk for *Oliva hirasei hirasei* Kuroda & Habe, 1952 (blue dots), *Oliva hirasei ameliae*, new subspecies (orange dots), and *Oliva pacifica* Marrat, 1870 (green dots).

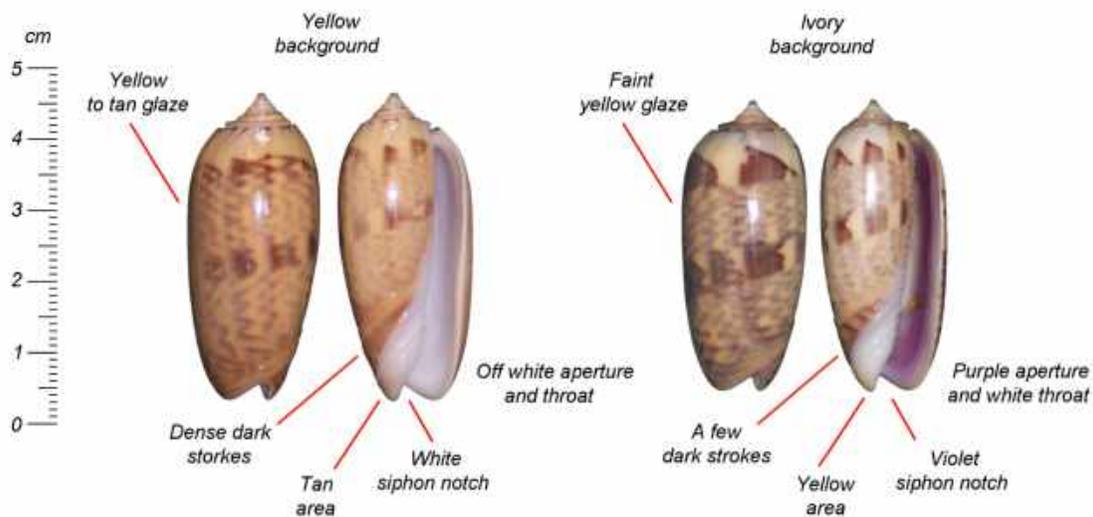


Figure 6. Morphological comparison between *O. hirasei hirasei* Kuroda & Habe, 1952, specimen from Zamboanga, Philippines, and *O. hirasei ameliae*, new subspecies, from Pangandaran Bay, S.W. Java, Indonesia.