

NEW RECORD OF *LIOCARCINUS MCLEAYI* (BARNARD, 1947), NEW COMBINATION (DECAPODA, BRACHYURA, PORTUNIDAE) FROM SOUTH EUROPE

BY

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ABSTRACT

Four specimens of the brachyuran crab *Liocarcinus mcleayi* (Barnard, 1947) (new combination), were captured from the Cadiz littoral (southern Spain) on a substratum of coarse sand and fine gravel under bottom currents at depths of 13 to 24 m.

These captures represent a new record of this species from Iberian and European waters and support the known African influence in the Spanish littoral of Cadiz.

Based on an anatomical study, a new combination is proposed for the name of the species.

RESUMEN

Cuatro ejemplares pertenecientes a la especie *Liocarcinus mcleayi* (Barnard, 1947) (nueva combinación) han sido capturados en aguas del litoral de Cádiz, a 13-24 metros, en fondos de arenas gruesas y gravas finas con corrientes de fondo.

Estas capturas representan la primera cita de la especie para aguas ibéricas y europeas, y ratifica la ya conocida influencia africana en la composición faunística del litoral español de Cádiz.

Por otro lado, basándose en un estudio anatómico, se propone una nueva combinación para la especie.

INTRODUCTION

The Crustacea Decapoda from Spanish waters are, in general, well known. However, the infralittoral zone (0 to 20 m) of the Gulf of Cádiz, in spite of its interesting zoogeographical position (Buen, 1887; Holthuis, 1977), is the worst known Iberian area (see Zariquiey, 1968; González-Gordillo et al., 1990).

The geographical location of this area, between Africa and Europe, and the Atlantic water circulation, favour the presence of African species which show a rather extensive distribution along the west African littoral, but are not found in other European areas. So, with reference to brachyuran crabs from intertidal or shallow waters, several species have been found: *Uca tangeri* (Eydoux, 1835) (cf. Heller, 1863), which is the best known of such species, *Panopeus africanus* A. Milne Edwards, 1867 (cf. Zariquiey, 1950) and *Brachynotus atlanticus* Forest, 1957 (cf. García Raso, 1984). Other infralittoral African species, such as *Scyllarus posteli* Forest, 1963 (cf. Pozuelo et al., 1976) or *Ogyrides rarispina* Holthuis, 1951 (cf. Holthuis, 1977), have also been found.

MATERIAL AND METHODS

For reasons mentioned above, a new study of the decapod communities of the various biotopes in the Cadiz littoral has been started. Monthly samples were taken using a small and heavy dredge, like that used for rock-dredging, with a rectangular frame of 42 × 22 cm and a double net bag, the size of the inside mesh being 4.5 mm knot to knot.

Of the specimens captured, the maximum length and width of the carapace has been measured.

RESULTS AND DISCUSSION

Four specimens of the brachyuran crab *Liocarcinus mcleayi* (Barnard, 1947), previously assigned to the genus *Xaiva* Macleay 1838, were caught off the Barbate littoral, Cádiz (Spain), in July, October, and November 1993 at depths of 13 to 24 m.

Of the genus *Xaiva*, three species restricted to the eastern Atlantic Ocean have been cited: *X. biguttata* (Risso, 1816), *X. pulchella* MacLeay, 1838, and *X. mcleayi* (Barnard, 1947).

The first two species are intertidal or occur in shallow waters and are morphologically very close. Because of this, Barnard (1947) synonymized *X. pulchella* with *X. biguttata*, but Macpherson (1989) showed these to be different.

The other species, *X. mcleayi*, shows some morphological differences from the two mentioned previously, and its appearance is close to the genus *Portumnus* Leach, 1814 and also to the species of the *Liocarcinus pusillus* group (Christiansen, 1969; Frogliá & Manning, 1982) [(i.e., *L. pusillus* (Leach, 1815), *L. maculatus* (Risso, 1827) and *L. zariquieyi* (Gordon, 1968)]. This probably was the reason for its original assignation to the genus *Portumnus* Leach, 1814 (cf. Barnard, 1957). Subsequently, Monod (1956) showed that it does not belong in the genus *Portumnus* (based on the infraorbital margin, the third maxilliped, etc.) and included it in *Xaiva*, a genus instituted for the type species *X. pulchella* (Macleay, 1838).

The arguments given above make it interesting to point out the morphological differences existing between these three genera, mainly those affecting the diagnosis (table I) and the position of *X. mcleayi* (now in *Liocarcinus* Stimpson, 1871) with its relationship to these genera as well as to other related species.

In *X. mcleayi* the following details can be observed.

1. The carapace (fig. 1A) is as broad as long, while in the other species of *Xaiva* it is slightly broader than long (Ingle, 1980; Macpherson, 1989).
2. The frontal margin is produced, advanced beyond the orbits, more or less flat dorsally (fig. 1A), resembling the condition of the species of the *Liocarcinus pusillus* group and mainly that of *L. zariquieyi* (cf. Frogliá & Manning, 1982) (fig. 2A), with three lobes of which the central one is slightly longer than the two submedians but not as pronouncedly triangular as in *Xaiva* (fig. 3A).

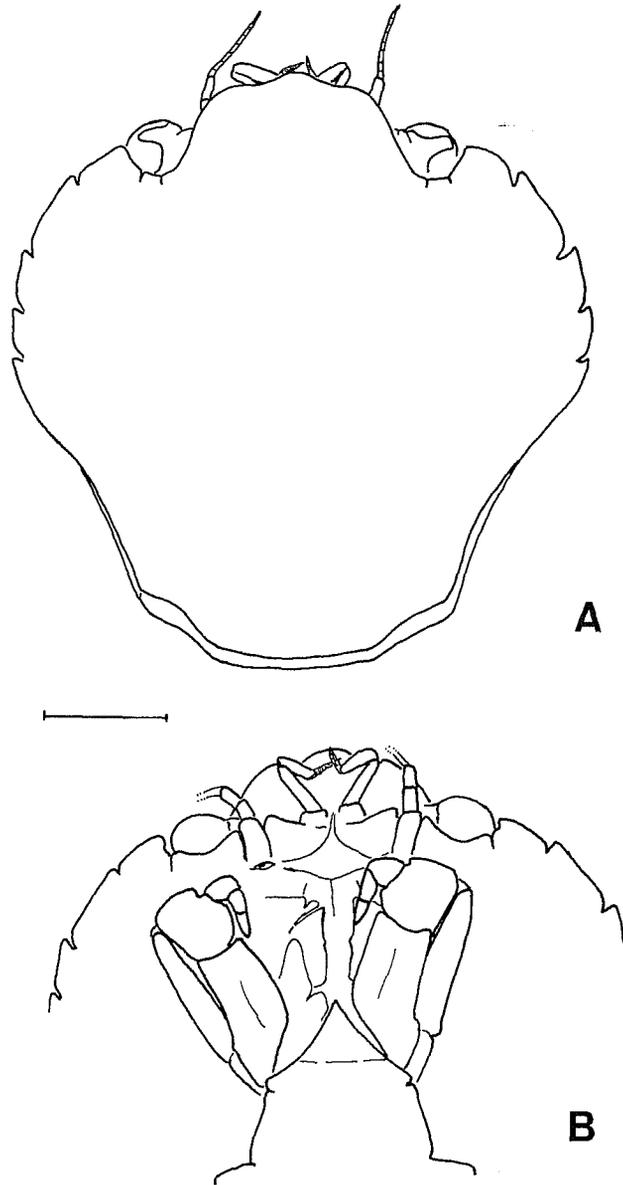


Fig. 1 A, B. *Liocarcinus mcleayi* (Barnard, 1947). A; carapace in dorsal view; B, anteroventral view, buccal region.

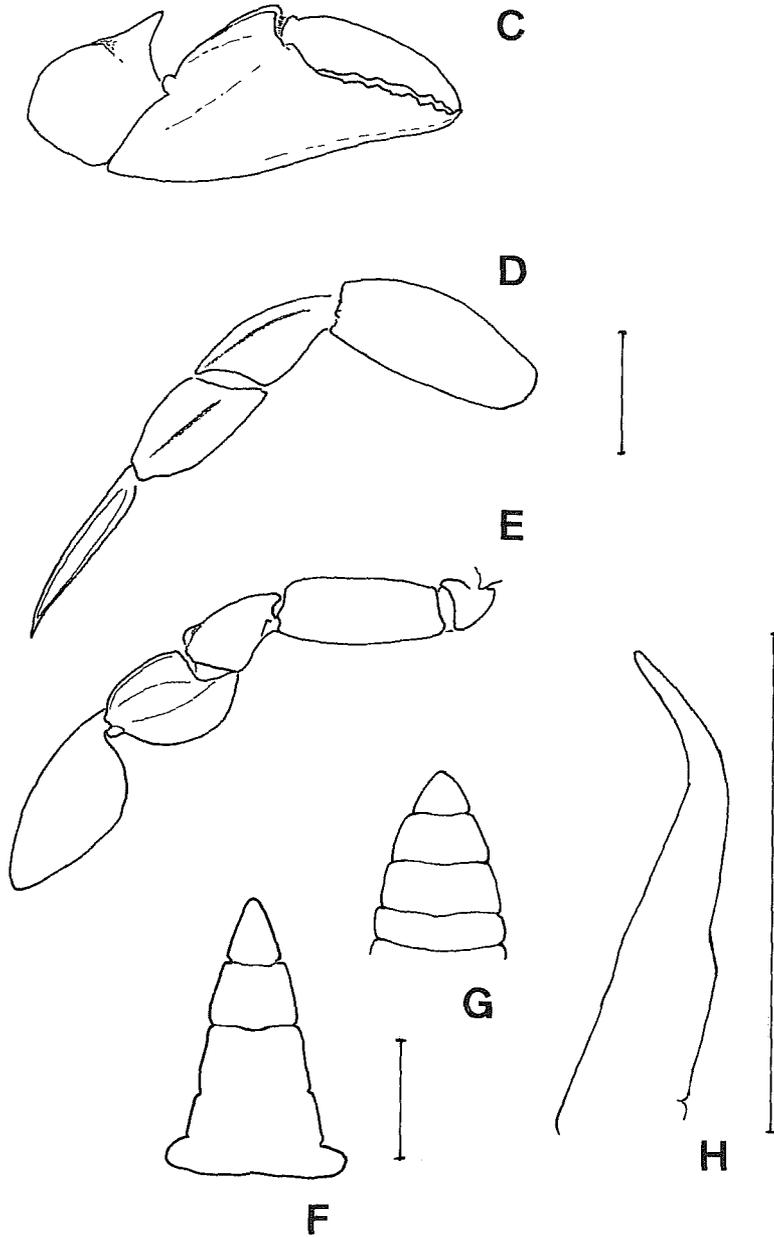


Fig. 1 C-H. *Liocarcinus mcleayi* (Barnard, 1947). C, right cheliped; D, left fourth pereiopod; E, left fifth pereiopod; F, male abdomen; G, female abdomen; H, male right first pleopod, in natural position. Scales: 2 mm.

3. The shape of the anterolateral teeth of the carapace with their concave margins, is more similar to that of the genus *Xaiva*; but this character, as the shape of the rostrum, is fairly variable [for example in *P. latipes* (Pennant, 1777) and *P. pestai* Forest, 1967 (cf. Forest, 1967)]. On the other hand, the second anterolateral teeth are larger than the first (fig. 1A), while in *Xaiva* the first pair is larger than the second (fig. 3A).

4. The dorsal orbital margin presents two longitudinal sutures (fig. 1A) between which there is no lobe (present in *Xaiva*) (fig. 3A).

5. In the infraorbital margin there is a narrow V-shaped incision (fig. 1B) similar to that in species of *Liocarcinus* (cf. fig. 2B), but it is not as wide as in *Xaiva* (fig. 3B).

6. In *X. mcleayi* there is no gap between the antennal peduncle and inner lower orbital margin (fig. 2B), as occurs in the genus *Xaiva* (fig. 3B). A gap exists in the other two genera, *Portumnus* and *Liocarcinus*, but in the latter there are species such as *L. arcuatus* and *L. zariquieyi* in which it is very narrow or fully absent (fig. 2B).

7. There are lateral ridges on the endostome (fig. 1B), which exist in *Liocarcinus* (fig. 2B) and not in *Xaiva* (fig. 3B).

8. The third maxilliped extends over the epistome in the genus *Portumnus*, not in *Xaiva* and *Liocarcinus*. However, the inner anterolateral margin of the merus of the third maxilliped is more projecting in *Xaiva* (fig. 3E) than in *Liocarcinus* and in *X. mcleayi* (fig. 1B).

9. The dactylus of the fifth pereopod is ovate-lanceolate (fig. 1E), more or less similar to that of the *Liocarcinus pusillus* group (fig. 2D), but not as lanceolate as in *Xaiva* (fig. 3C).

10. Finally, the male first pleopod is curved (fig. 1H) like that of species of *Liocarcinus* and different from those of *Xaiva*, which are straight (fig. 3D) and not curved.

According to all characters cited above, this species, although showing some characters of *Xaiva*, should be included in the genus *Liocarcinus*, *L. zariquieyi* being the most closely related species.

***Liocarcinus mcleayi* (Barnard, 1947)**

Portumnus mcleayi Barnard, 1947; Barnard, 1950; Capart, 1951.

Xaiva mcleayi; Monod, 1956; Guinot & Ribeiro, 1962; Forest & Guinot, 1966; Crosnier, 1967; Manning & Holthuis, 1981; Macpherson, 1989.

Material captured. — Barbate, 18-vii-93, 24.0 m, 1 ♀, length/width 4.50/4.50 mm. Barbate, 15-x-93, 13.5 m, 1 ♂, length/width 9.65/9.70 mm. Barbate, 19-xi-93, 18.0 m, 1 ♂, length/width 5.90/5.80 mm. Barbate, 19-xi-93, 15.0 m, 1 ♂, length/width 8.40/8.60 mm.

The four specimens were caught off the Barbate littoral (Cádiz, Spain), on soft bottoms of coarse sand and fine gravel under bottom currents.

The other species found on the same bottom (in order of abundance) were: *Diogenes pugilator* (Roux, 1829); *Galathea intermedia* Lilljeborg, 1851; *Paguristes*

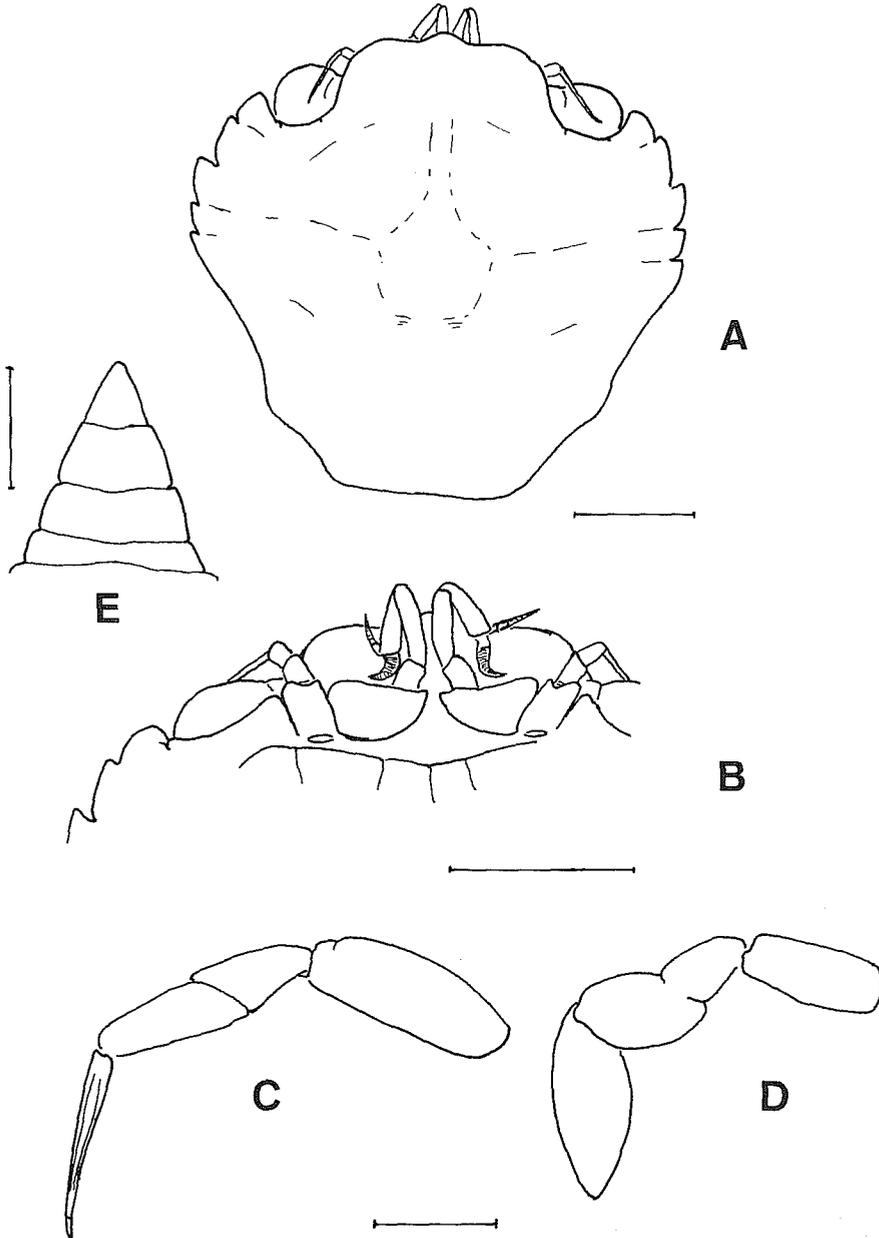


Fig. 2. *Liocarcinus zariquiyi* (Gordon, 1968), specimen from Málaga. A, carapace in dorsal view; B, anterioventral view, buccal region; C, left fourth pereiopod; D, left fifth pereiopod; E, female abdomen. Scales: 2 mm.

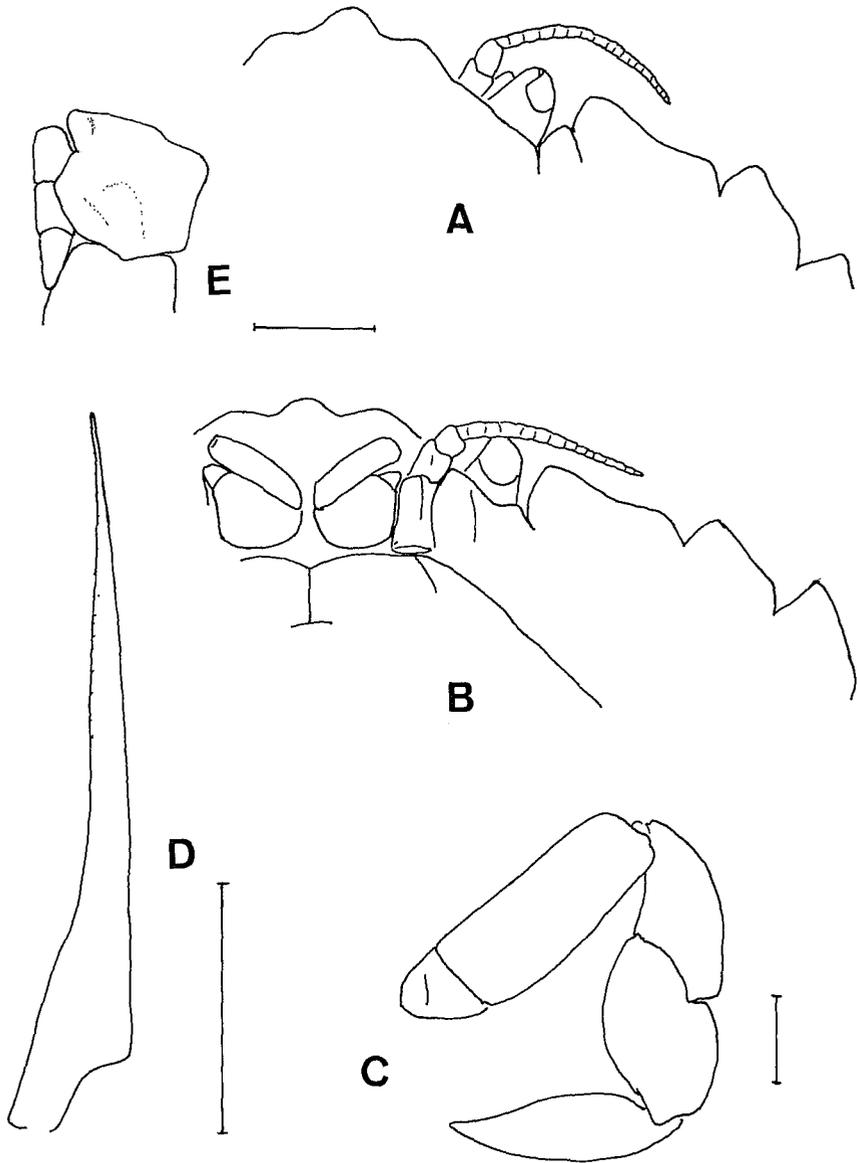


Fig. 3. *Xaiva biguttata* (Risso, 1816), specimen from Málaga. A, dorsal orbital margin; B, infraorbital margin; C, right fifth pereiopod; D, male first pleopod; E, merus of third maxilliped. Scales: 2 mm.

eremita (Linnaeus, 1767); *Pisidia longicornis* (Linnaeus, 1767); *Pagurus forbesii* Bell, 1845; *Anapagurus hyndmanni* (Bell, 1845); *Pagurus cuanensis* Bell, 1845; *Processa macrophthalma* Nouvel & Holthuis, 1957; *Spiropagurus elegans* Miers, 1881; *Thoralus cranchii* (Leach, 1817); *Atelecyclus undecimdentatus* (Herbst, 1783); *Ethusa mascarone* (Herbst, 1785); *Liocarcinus bolivari* (Zariquiey Alvarez, 1948); *Liocarcinus pusillus* (Leach, 1815); *Pagurus excavatus* (Herbst, 1791); *Pagurus prideaux* Leach, 1815; *Palaemon serratus* (Pennant, 1777); *Palaemonetes varians* (Leach, 1814); *Pilumnus spinifer* H. Milne Edwards, 1834 and *Macropodia rostrata* (Linnaeus, 1761).

Colour. — Variable; carapace from light beige with a few orange points or greenish with lighter margins, to pale pink. Pereiopods 2 to 4 with distal two-

TABLE I

Characters diagnostic in the genera *Portumnus*, *Liocarcinus* and *Xaiva*

	<i>Portumnus</i>	<i>Xaiva</i>	<i>Liocarcinus</i>
Carapace	More or less as broad as long	Slightly broader than long	In general broader than long
Antero-lateral teeth	Broad, not conspicuous and subacute or a little curved forward	Subacute and broad	More or less equal and curving forward
Frontal region	Produced and strongly trilobate	With a median produced lobe and two submedian obtuse lobes	Produced and trilobate, sometime the central more acute, or entire
A gap between A1 peduncle and inner lower orbital margin	Present	Absent	Moderate to very narrow gap
Dorsal orbital margin	Without or with a very small suture	With two longitudinal sutures with a lobe in between	With two longitudinal sutures and without an intermediate lobe
Infraorbital margin	Without or with a very small suture	With a V-shaped incision	With a narrow V-shaped incision
Endostome with lateral ridges	Absent	Absent	Present
Third maxilliped extending over the epistome	Yes	No	No
Dactylus of P5	More or less lanceolate	Lanceolate	Ovate or ovate-lanceolate
Male pleopod	Almost straight or with the apex curved	Straight, not curved at the apex	Robust in the basal zone, gradually curved and narrowed towards the apex

thirds of propodus and basal third of dactylus with a light reddish brown band and a very narrow band of the same colour on the basal part of the merus. The movable finger of the cheliped may also present a very narrow band on its basal part.

Distribution. — The species, described from South African waters (Algoa Bay to Port Shepstone, at 36-40.5 mm (24-27 fathoms)), has a wide geographical distribution, ranging from South Africa to Mauritania (Barnard, 1947, 1950; Capart, 1951; Guinot & Ribeiro, 1962; Forest & Guinot, 1966; Crosnier, 1967; Manning & Holthuis, 1981), and now also to Spain.

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