Petraliella buski Stach, 1936

Figs 2A–D

Mucronella bisinuata Busk, 1884 (not Smitt, 1873): 157, pl. 19, fig. 5.
Mucronella bisinuata (not Smitt): Kirkpatrick, 1890: 612
Petraliella bisinuata (not Smitt): Livingstone, 1927: 66; Harmer, 1957 (in part): 696, pl. 44, figs 6, 7.
Petraliella buski Stach, 1936: 368.
Petraliella arafurensis Stach, 1936: 368, fig. 10.

Material examined

LECTOTYPE (here chosen): BMNH 1887.12.9.624 (Type of *Mucronella bisinuata* Smitt *sensu* Busk, 1884) 'Challenger' Stn 190, S. of New Guinea, 8°56′S, 136°5′E, 49 fathoms (90 m).

PARALECTOTYPES (here chosen): BMNH 1887.12.9.625, 626, (Paratypes of *Mucronella bisinuata* Smitt *sensu* Busk, 1884), (locality data as above); BMNH 1899.7.1.4960, BMNH 1944.1.8.299, (Syntypes of *Mucronella bisinuata* Smitt *sensu* Busk, 1884), (locality data as above).

OTHER MATERIAL EXAMINED: AM U510 (Holotype and paratypes of *Petraliella arafurensis* Stach, 1936), Thursday Island, Torres Strait; BMNH 1882.2.23.497–506, Arafura Sea, 32–36 fathoms (58–66 m), Voyage 'Alert'; BMNH 1890.3.24.34, Albany Passage, Stn 8, Torres Strait, Haddon Coll.; BMNH 1999.3.9.3, Torres Strait, Haddon Coll.; BMNH 1963.9.8.46, 'Siboga' Stn 163, Seget, N. end of New Guinea, 29 m; BMNH 1999.11.8.11, 'Siboga' Stn 162, off Loslos Island, N. end of New Guinea, 18 m; BMNH 1963.9.8.45, 'Siboga' Stn 274, off Jedan, Aru Islands, 57 m; BMNH 1892.1.28.65, Baleine Bank, NW Australia, 10–15 fathoms (18–27 m), P.W. Bassett-Smith Coll.; BMNH 1892.1.28.69, Holothuria Bank, NW Australia, 15 fathoms (27.5 m), P.W. Bassett-Smith Coll.; BMNH 1944.1.8.300, Kobe, Japan, 8–50 fathoms (15–91 m), 'Challenger' Coll..

Description

Colony semi-encrusting, sometimes erect and tubular. Autozooids polygonal, separated by a shallow groove (*c.* 0.85 × 0.50 mm), frontal shield uniformly perforate with large pores; marginal pores indistinct, lateral walls distinct. Primary orifice constricted laterally, with paired lateral denticles and paired proximal sinuses flanking an anvil-shaped median denticle approximately half the width of the proximal border; minute triangular condyles present. Oral avicularia, often numerous; usually single or paired distal to the orifice, orientated proximolaterally; others lateral and proximolateral to orifice, directed randomly. Rostra elongate triangular, serrated distally; mandibles triangular, with central sclerite; hooked terminally; crossbar complete. Other avicularia, similar in shape and size to oral avicularia, produced on the frontal shield later in ontogeny, randomly orientated. Ovicells prominent, uniformly perforate with numerous small pores, secondary calcification producing a border around the aperture and an imperforate patch frontally. Basal radicular chambers may be very

Remarks

Petraliella buski is characterised by its pair of lateral denticles, pair of lateral sinuses and anvil-shaped median denticle, as well as its randomly oriented elongate triangular avicularia with a serrated rostrum. It differs from *P. dentilabris*, which has multiple median denticles and sinuses and oral avicularia that are often slightly curved but always distally directed. *P. buski* also produces numerous randomly oriented avicularia, a feature not observed in *P. dentilabris*. It differs from *P. concinna*, which has a single median sinus, a pair of lateral denticles and oral avicularia that are oval and directed laterally. *P. buski* differs from *P. dorsiporosa*, *P. magna* and *P. crassocirca* in having a median and lateral denticles and lateral sinuses, whereas the latter three species have entire proximal orificial margins.

Stach (1936) introduced the name *Petraliella buski* for Busk's (1884) 'Challenger' specimens of *Mucronella bisinuata* (not Smitt, 1873) from the Arafura Sea, without, however, examining any of the 'Challenger' material. He also, somewhat confusingly, introduced the name *P. arafurensis* for specimens of a closely similar species, housed in the Australian Museum, from Thursday Island, Torres Strait, off northern Queensland (AM U510). Included in his concept of *P. arafurensis* was the material listed, but not described, by Kirkpatrick (1890), also from the Torres Straits, which may also be regarded as potential paralectotype material, although, again, Stach did not actually examine the specimens. Stach's (1936) introductions were therefore somewhat unorthodox; but type material for both of his species exists in museum collections and is therefore available for revision. Having examined material from both the Torres Strait and Arafura Sea and finding them to be identical, they are all here assigned to *Petraliella buski*. It appears Harmer (1957) was correct in regarding the differences in avicularian characters between *P. buski* and *P. arafurensis* as being due to ontogenetic state only.

Although Harmer (1957) did not accept Stach's subdivision of "*Petraliella bisinuata*", there are sufficient differences between the completely isolated western Atlantic and western Pacific populations to maintain their taxonomic separation. The numerous circumoral avicularia in *P. buski* are present quite early in ontogeny (cf. Harmer, 1957). The distal pair with proximal orientation are present frequently enough to distinguish *P. buski* (see Fig. 2C) from *P. bisinuata*, where the oral avicularia originate proximolaterally and are always distally directed. *P. bisinuata* from the Gulf of Mexico also has more prominent lateral denticles and a far narrower median denticle (see Fig. 1B). The basal septular pores of *P. bisinuata* often include one distal chamber with paired secondary chambers (see Canu & Bassler, 1928: pl. 16, fig. 2). The radicular chambers in *P. buski* are very large, sometimes occupying almost the entire basal wall area (see Harmer, 1957: pl. 44, fig. 6).

It may be noteworthy that neither Canu & Bassler (1929) (Philippines region) nor Waters (1909, 1913) (western Indian Ocean) described a species similar to *Petraliella buski* despite its presence from northwest to northeast Australia, and Indonesia to Japan. The northwest Australian material differs slightly in colour when dried from that found in Queensland and the Arafura Sea: it is a dark orange as opposed to a beige brown colour.

Petraliella buski Stach, 1936. Tilbrook & Cook, 2004, p.322, figs 2A-D

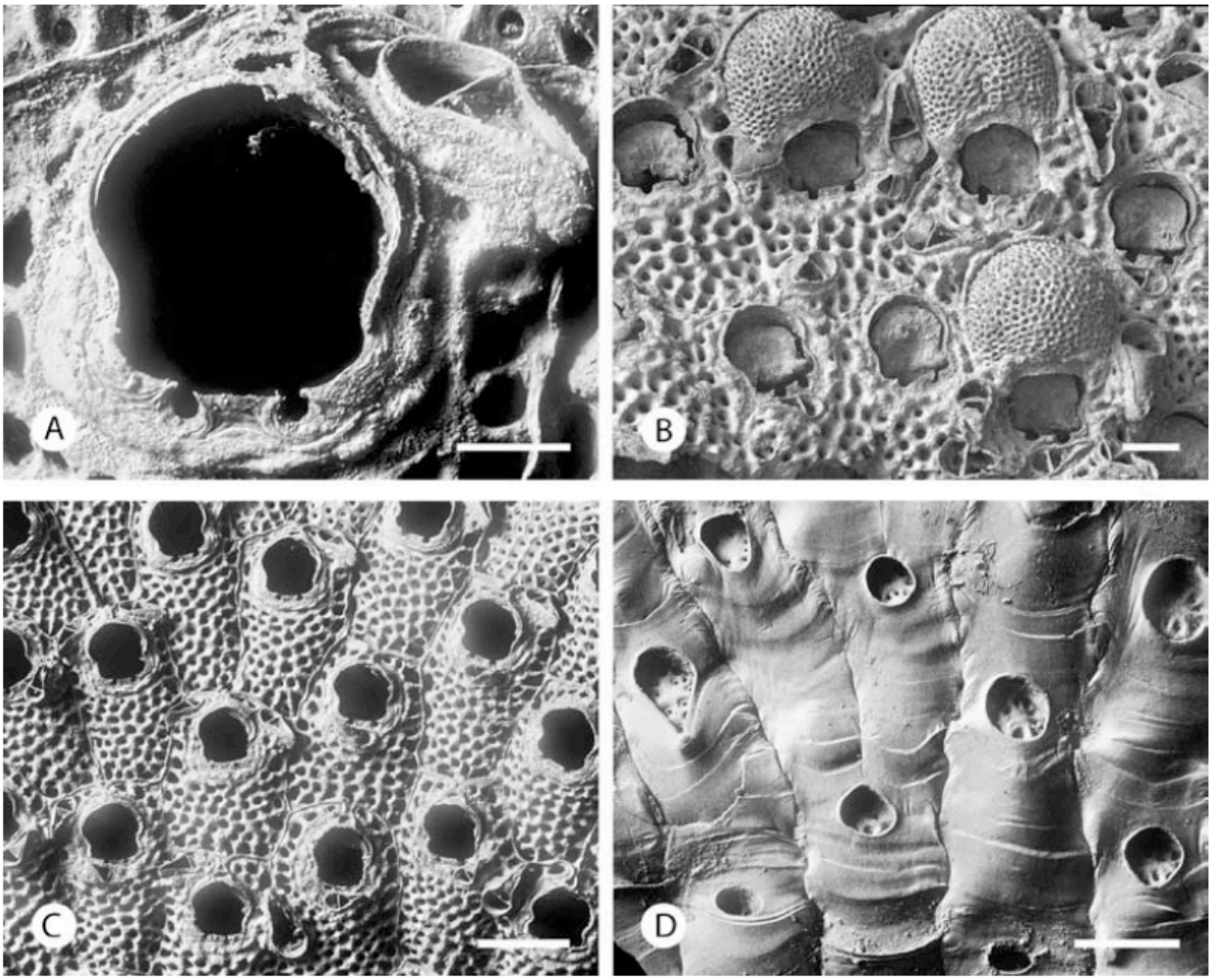

Figure 2 A–D, *Petraliella buski* Stach, 1936. A, C, D, Paralectotype BMNH 1944.1.8.299, 'Challenger' Stn 190, Arafura Sea. B, AM U.510, Thursday Island, Torres Strait. A, primary orifice, note the size and relative position of the median and lateral denticles (cf. *P. bisinuata*), and the orientation of the distal oral avicularium. B, group of autozooids, including three ovicellate zooids. C, group of autozooids from close to growing edge, note the proximolaterally directed distal oral avicularia. D, basal surface of several zooids showing distally positioned radicular chambers. A, scale bar 100 μm; B, C, scale bar 200 μm; D, scale bar 400 μm.