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Marine Molluscs from Flexeiras beach, Rio de Janeiro state, Southeastern Brazil

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Abstract

This paper presents a check list of marine mollusks collected at Flexeiras beach, Itacuruçá Island, Rio de Janeiro state, Brazil. A total of 41 species, belonging to 36 genera and 28 families were identified. Bivalves showed the highest species richness. Our results suggested that the presence of rock fragments in sandy beaches enhances environmental heterogeneity and enable the settlement and recruitment of both sandy beach and rocky shore organisms increasing the biodiversity.

Key words: Mollusca, Sand beach, Itacuruçá, Sepetiba Bay, Brazil.

Resumo

Este artigo apresenta uma lista taxonômica dos moluscos marinhos coletados e identificados na praia das Flexeiras, Ilha de Itacuruçá, estado do Rio de Janeiro, Brasil. Um total de 41 espécies, pertencentes a 36 gêneros e 28 famílias foram identificadas com os bivalves exibindo a maior riqueza de espécies. Nossos resultados sugerem que a presença de fragmentos rochosos em praias arenosas aumenta a heterogeneidade ambiental e permitem o assentamento e recrutamento de organismos de ambos, praias arenosas e costões rochosos, com incremento da biodiversidade nessas áreas.

Palavras-chave: Mollusca, Praia arenosa, Itacuruçá, Baía de Sepetiba, Brasil.

Introduction

At the end of 2006, a project was carried out to characterize the benthic macroinfauna and study the population biology of the most abundant species. This project took place in Flexeira beach a sandy beach located at southern coast of Rio de Janeiro state, Brazil.

The sample analysis from this project revealed that molluscs were one of most important taxa in both, species richness and abundance, when compared to other invertebrates groups. This fact motivated the check list of molluscan species presented in this study, accompanied of shell illustrations of the material studied.

Material and Methods

Flexeiras beach (22º56'S, 43º53'W) is located in Itacuruçá Island, Sepetiba Bay, Rio de Janeiro state. This beach extends for 350 meters, slope gently, has low waves action and can be characterized as a sheltered beach according to the ranking system of McLachlan (1980). The sediment is mainly constituted by sand (medium to coarse grain size), with rock fragments and seagrass beds of Halodule wrightii were observed along the beach.

Specimens were collected in the intertidal zone and upper infralittoral between November 2006 and January 2008. In the laboratory, live molluscan specimens collected (i.e., only individuals with soft parts) were identified to the lowest taxonomic level possible using the current literature (Diaz & Puyana 1994, Rios 1994, Absalão & Pimenta 2005).

Voucher material was deposited in the mollusc collection at Museu Nacional, Universidade Federal do Rio de Janeiro (MNUFRJ 12435-12475).

Results and Discussion

A total of 41 species, belonging to 36 genera and 28 families were identified. The class Bivalvia presented the highest species richness (n = 23), followed by Gastropoda (n = 17) and Polyplacophora, with only

one species (Table 1, Figs. 1-41).

Denadai et al. (2000) studied the molluscs of two beaches, São Francisco and Engenho d'Água, located in northern coast of São Paulo state and obtained results very similar to those from Flexeiras beach. São Francisco and Engenho d'Água beaches presented 23 and 38 molluscs species, respectively. Our results show that Flexeira beach has 13 species in common with São Francisco beach, and 17 with Engenho d'Água beach.

Our results agreed with Denadai et al. (2000), that strongly differ from the traditional assumption that benthic macroinfauna of sandy beaches are impoverished as a consequence of the physically harsh environment. According to Denadai et al. (2000), the presence of rock fragments in sandy beaches enhances environmental heterogeneity, creating moist and shady microhabitats. Besides that, these rock fragments in association with sand enable the settlement and recruitment of both sandy beach and rocky shore organisms.

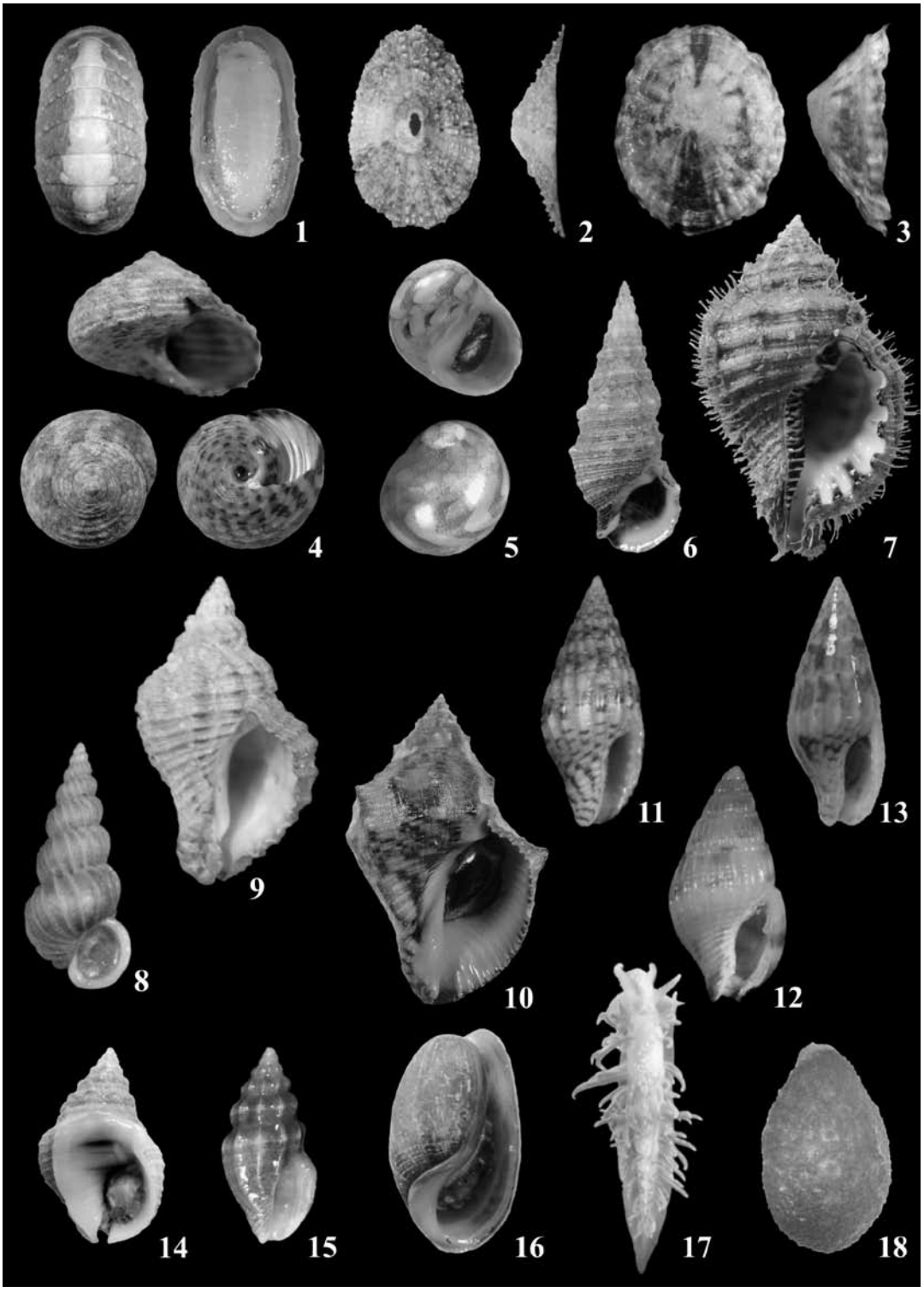
Table 1. Species composition at Flexeiras beach, Itacuruçá island.

Mollusca

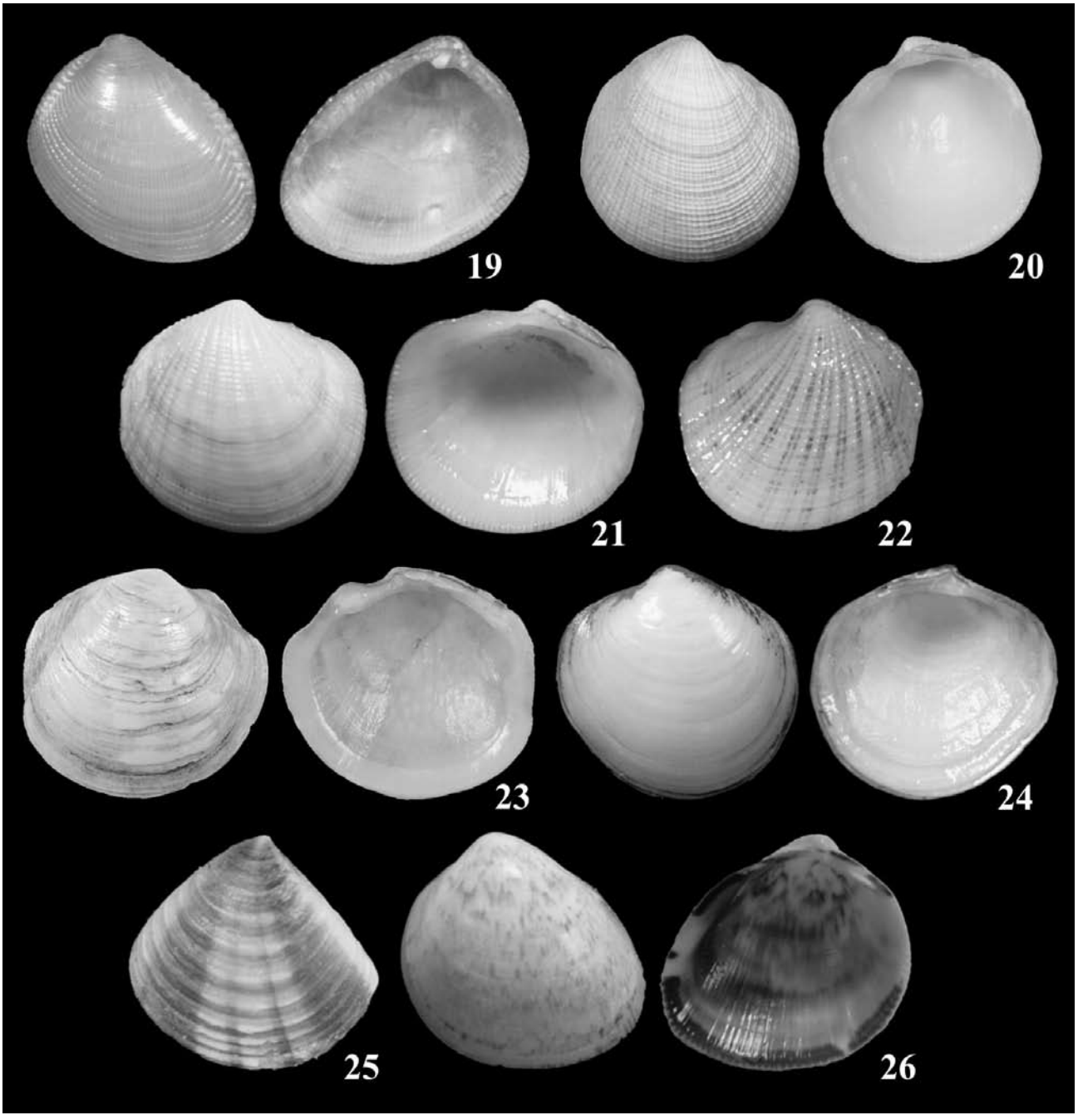
Polyplacophora
- Ischnochitonidae
  - *Ischnochiton striolatus* (Gray, 1828)

Gastropoda
- Fissurellidae
  - *Fissurella rosea* (Gmelin, 1791)
- Acmaeidae
  - *Collisella subrugosa* (d'Orbigny, 1846)
- Trochidae
  - *Tegula viridula* (Gmelin, 1791)
- Neritidae
  - *Neritina virginea* (Linnaeus, 1758)
- Cerithiidae
  - *Cerithium atratum* (Born, 1778)
- Ranellidae
  - *Cymatium parthenopeum* (von Salis, 1793)
- Epitoniidae
  - *Epitonium (Asperiscala)* sp.
- Muricidae
  - *Urosalpinx haneti* (Petit, 1856)
- Thaididae
  - *Stramonita haemastoma* (Linnaeus, 1767)
- Columbellidae
  - *Anachis aff. catenata* (Sowerby, 1844)
  - *Anachis cf. isabellei* (d'Orbigny, 1841)
  - *Anachis sertulariarum* (d'Orbigny, 1841)
- Nassariidae
  - *Nassarius vibex* (Say, 1822)
- Turridae
  - *Pyrgocythara cf. guarani* (d'Orbigny, 1841)
- Bullidae
  - *Bulla striata* Bruguiere, 1792
- Spurillidae
  - *Spurilla neapolitana* (Delle Chiaje, 1923)
- Onchidiidae
  - *Onchidella indolens* (Couthouy *in* Gould, 1852)

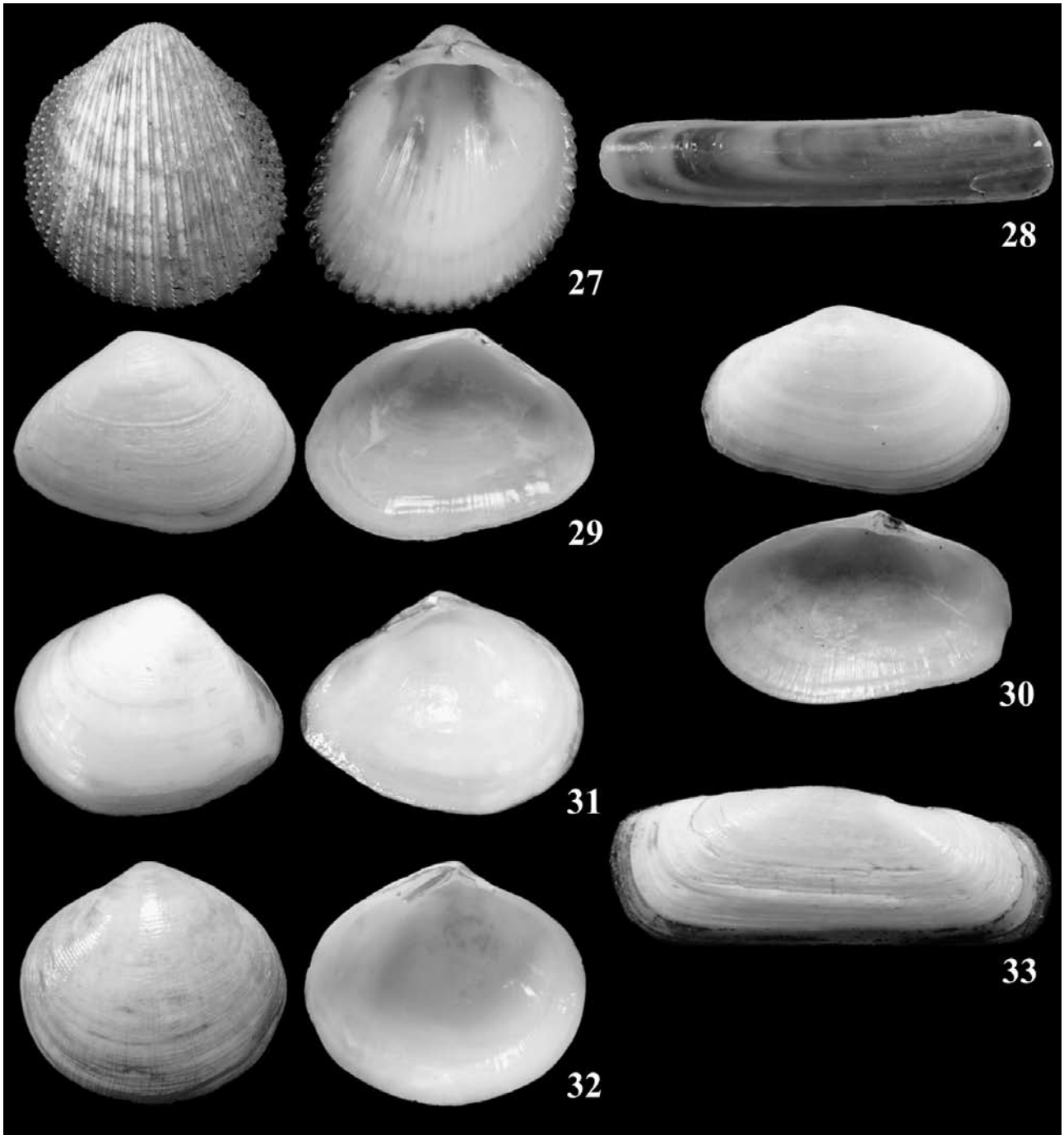
Bivalvia
- Nuculidae
  - *Nucula semiornata* d'Orbigny, 1846
- Lucinidae
  - *Codakia costata* (d'Orbigny, 1842)
  - *Ctena orbiculata* (Montagu, 1808)
  - *Ctena pectinella* (C.B. Adams, 1852)
  - *Lucina pectinata* (Gmelin, 1791)
- Ungulinidae
  - *Diplodonta patagonica* (d'Orbigny, 1842)
- Crassatellidae
  - *Crassinella lunulata* (Conrad, 1834)
- Cardiidae
  - *Laevicardium brasilianum* (Lamarck, 1819)
  - *Trachycardium muricatum* (Linnaeus, 1758)
- Solenidae
  - *Solen tehuelchus* Hanley, 1842
- Tellinidae
  - *Tellina cf. lineata* Turton, 1819
  - *Tellina cf. versicolor* De Kay, 1843
  - *Macoma constricta* (Bruguière, 1792)
- Semelidae
  - *Semele proficua* (Pulteney, 1799)
- Psammobiidae
  - *Tagelus plebeius* (Lightfoot, 1786)
- Donacidae
  - *Ipighenia brasiliana* (Lamarck, 1818)
- Veneridae
  - *Anomalocardia brasiliana* (Gmelin, 1791)
  - *Callista maculata* (Linnaeus, 1758)
  - *Chione subrostrata* (Lamarck, 1818)
  - *Chione paphia* (Linnaeus, 1767)
  - *Gouldia cerina* (C.B. Adams, 1845)
  - *Pitar fulminatus* (Menke, 1828)
- Corbulidae
  - *Corbula patagonica* d'Orbigny, 1846



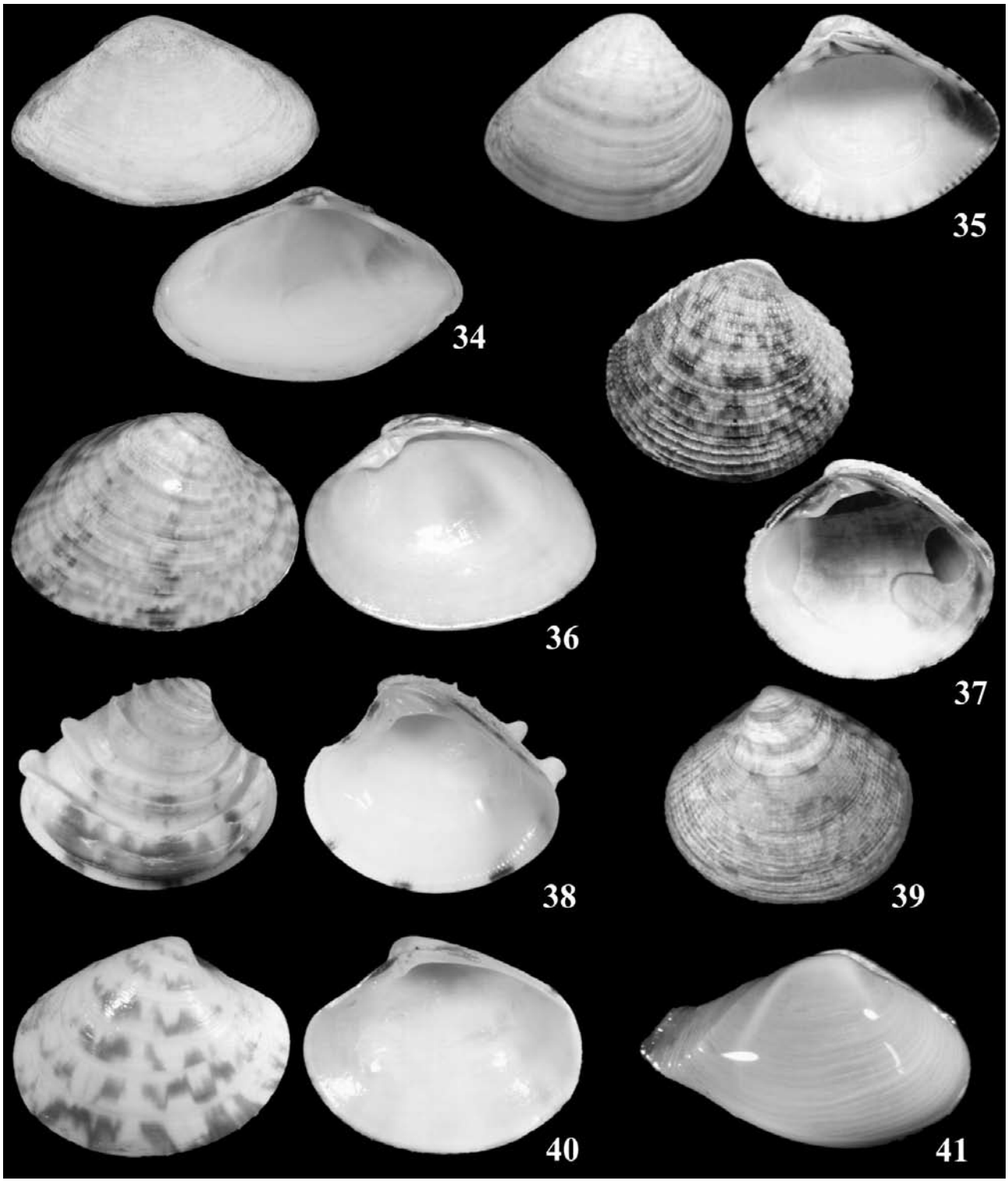
Figures 1-17. 1- *Ischnochiton striolatus*, MNUFRJ 12435 (15 mm); 2- *Fissurella rósea*, MNUFRJ 12436 (24 mm); 3- *Collisella subrugosa*, MNUFRJ 12437 (30 mm); 4- *Tegula viridula*, MNUFRJ 12438 (23 mm); 5- *Neritina virginea*, MNUFRJ 12439 (14 mm); 6- *Cerithium atratum*, MNUFRJ 12440 (34 mm); 7- *Cymatium parthenopeum*, MNUFRJ 12441 (72 mm); 8- *Epitonium (Asperiscala)* sp., MNUFRJ 12442 (8 mm); 9- *Urosalpinx haneti*, MNUFRJ 12443 (33 mm); 10- *Stramonita haemastoma*, MNUFRJ 12444 (75 mm); 11- *Anachis aff. catenata*, MNUFRJ 12445 (8 mm); 12- *Anachis cf. isabellei*, MNUFRJ 12446 (6 mm); 13- *Anachis sertulariarum*, MNUFRJ 12447 (13 mm); 14- *Nassarius vibex*, MNUFRJ 12448 (14 mm); 15- *Pyrgocythara cf. guarani*, MNUFRJ 12449 (5 mm); 16- *Bulla striata*, MNUFRJ 12450 (28 mm); 17- *Spurilla neapolitana*, MNUFRJ 12451 (15 mm); 18- *Onchidella indolens*, MNUFRJ 12452 (15 mm).



Figures 19-26. 19- *Nucula semiornata*, MNUFRJ 12453 (6 mm); 20- *Codakia costata*, MNUFRJ 12454 (13 mm); 21- *Ctena orbiculata*, MNUFRJ 12455 (20 mm); 22- *Ctena pectinella*, MNUFRJ 12456 (8 mm); 23- *Lucina pectinata*, MNUFRJ 12457 (51 mm); 24- *Diplodonta patagonica*, MNUFRJ 12458 (19 mm); 25- *Crassinella lunulata*, MNUFRJ 12459 (9 mm); 26- *Laevicardium brasilianum*, MNUFRJ 12460 (16 mm).



Figures 27-33. 27- *Trachycardium muricatum*, MNUFRJ 12461 (45 mm); 28- *Solen tehuelchus*, MNUFRJ 12462 (61 mm); 29- *Tellina* cf. *lineata*, MNUFRJ 12463 (30 mm); 30- *Tellina* cf. *versicolor*, MNUFRJ 12464 (13 mm); 31- *Macoma constricta*, MNUFRJ 12465 (39 mm); 32- *Semele proficua*, MNUFRJ 12466 (27 mm); 33- *Tagelus plebeius*, MNUFRJ 12467 (74 mm).



Figures 34-41. 34- *Ipighenia brasiliana*, MNUFRJ 12468 (48 mm); 35- *Anomalocardia brasiliana*, MNUFRJ 12469 (34 mm); 36- *Callista maculata*, MNUFRJ 12470 (69 mm); 37- *Chione subrostrata*, MNUFRJ 12471 (30 mm); 38- *Chione paphia*, MNUFRJ 12472 (27 mm); 39- *Gouldia cerina*, MNUFRJ 12473 (11 mm); 40- *Pitar fulminatus*, MNUFRJ 12474 (35 mm); 41- *Corbula patagonica*, MNUFRJ 12475 (17 mm).

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References

ABSALÃO, R.S. & PIMENTA, A.D. 2005. Moluscos Marinhos da APA do Arquipélago de Santana, Macaé, RJ - chave para identificação das espécies do substrato inconsolidado. Rio de Janeiro: Editora Ciência Moderna, 84 pp.

DENADAI, M.R.; AMARAL, A.C.Z.; TURRA, A. 2000. Annual variation of the malacofauna on two interdial sandy substrates with rock fragments in southeastern Brazil. Revista Brasileira de Oceanografia 48(2): 141-150.

DIAZ, J.M.M. & PUYANA, M.H. 1994. Moluscos del Caribe Colombiano. Santafé de Bogotá, Colciencias y Fundación Natura, 291pp + 78 pls.

MCLACHLAN, A. 1980. The definition of sandy beaches in relation to exposure. South African Journal of Science 76(1): 137-138.

RIOS, E. C. 1994. Seashells of Brazil, second edition. Fundação da Universidade do Rio Grande. Rio Grande, 368 pp. + 113 pls.

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