C. 1, 2, 7, 10, 17, 18 and 19. Significant protection against metrazole induced convulsions was shown by compounds 1, 2, 7, and 10. The maximum anticonvulsant activity was exhibited by compound 7. None of the compounds caused acute neurological toxicity in the test doses. AED50 values of the compounds were 1000 mg/kg i.p. in most of the cases.

Compounds 1, 2, 7 and 10 showed tranquilizing (anti-aggressive), anti-depressant (reversal of ptosis) and anti-convulsant activities. It is worthwhile to point out that in general substitution with bromo group, (compounds 11 to 16) did not produce any significant effect. Substitution with iodo group (compounds 17, 18 and 19) showed increase in S/LA, contrary to other compounds which caused decrease in S/LA. Iodo derivatives showed tranquilizing and anti-depressant activity but were devoid of anti-convulsant activity.

Compound 7 appears to be the most promising in the present series as it showed marked tranquilizing, anti-depressant and anti-convulsant activity with high safety margin. Furthermore, in comparison to methaqualone which possesses marked sedative but no anti-depressant activity, this compound 7 showed anti-depressant activity with less sedation. Thus, the compound 7 may be a promising CNS active compound particularly as tranquilizer-anti depressant agent.

ACKNOWLEDGEMENT

CN is grateful to the Neuropharmacology Unit for financial assistance. MS thanks U.G.C. for financial assistance.

12 August 1982; Revised 20 December 1982


BAIRDIIDAE (OSACOD) FROM THE RECENT COASTAL SEDIMENTS OF BHATKAL AREA (KARNATAKA STATE) WEST COAST OF INDIA.

HONNAPPA AND SYED ABRAR

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ABSTRACT

Recent coastal sediments of Bhatkal area have yielded four Ostracoda species, namely, Neonesidea cracenticlava Maddocks, Paranesidea cf. P. fracticorallicola Maddocks, Bairdopiplata carinata Kornicker and Neonesidea schulzi Hartmann, belonging to genera Neonesidea Maddocks1, Paranesidea Maddocks1, and Bairdopiplata Coryell, Sample and Jennings2 of Bairdiidae family which are described. Taxonomic significance of muscle scar pattern has been discussed with a note on ecology.

INTRODUCTION

SANDY clays and clayey sands of Bhatkal area (figure 1, location map) on micropalaentological investigation have revealed ostracod shells preserved in good condition. The configuration of the muscle scars with reference to shape, position, number and ornamentation have been studied in detail followed by a discussion on the taxonomic significance as established by ostracod workers in general and Maddocks1 in particular. The shell ratios have been employed to interpret the ecology of the sediments of the area under investigation.

Systematic Description: (a) Suborder. Podocopa Sars, 1866 (b) Family. Bairdiidae Sars, 1887 (c) Subfamily. Bairdiinae Sars, 1888 (d) Genus. Neonesidea Maddocks, 1869, Neonesidea cracenticlava Madd-

Dimensions (mm)

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<th>Parameters</th>
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<tr>
<td>L</td>
<td>0.67</td>
<td>0.55</td>
<td>Left valves are slightly larger than the right valves.</td>
</tr>
<tr>
<td>H</td>
<td>0.38</td>
<td>0.35</td>
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<tr>
<td>T</td>
<td>0.22</td>
<td>0.20</td>
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Material: Fifteen shells (10 adults) both females and males.

Remarks: The shells under description resemble Bairdia simuvillosa Swain in general shape, but differ from it in having the largest dorsal margin. Our shell is similar to shells in shape and hinge, but differ from it in having the anterior marginal crenulations. Bairdia dimorpha van den Bold and shell of Orthobairdia irregularis Rome is identical with that of our shell but differs in the inner margin. Bairdia cretacea sub. sp. indica Sastry, Mamgain and Rao, resembles in shape, but differs with respect to ventral and inner margins.

Bairdia sp. described by Rajagopalan, differs from our shells in posterior margin. These shells are reported from the recent floor sediments of Indo-Pacific Ocean, coastal sediments from Gulf of California, younger Cenozoic coastal sediments of Madagascar, Turnaisian beds of Belgium Mio-Pliocene, shallow marine horizon of Trinidad and Late Cenozoic sediments of Hawaiian Islands. In India reported from Maastrichtian horizon of Trichinopoly, Palaeocene deposits of Pondicherry and Lower Tertiary sediments of Kutch.


Dimensions: (mm)

Parameters Maximum Minimum Remarks

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<tbody>
<tr>
<td>L</td>
<td>0.89</td>
<td>0.76</td>
<td>1) Left valves slightly overlap</td>
</tr>
<tr>
<td>H</td>
<td>0.58</td>
<td>0.56</td>
<td>the right valves.</td>
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<tr>
<td>T</td>
<td>0.30</td>
<td>0.27</td>
<td>2) Dimorphism is indistinct.</td>
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Material: Twenty shells (15 adults) including two complete shells, only males.

Remarks: Shell under description similar to Bairdia sp., and Bairdia corporuenta Muller, but differs in anterior margin, configuration of muscle scars and the latter in having the anterior marginal dentition. This closely resembles Bairdia brady van den Bold, in outlines, but differs in shape and position of muscle scars. Bairdia victri, shows affinity to our species shell in shape, but differs in the antero-dorsal curvature and the configuration of muscle scars. These shells are reported from Upper Cretaceous rocks of Texas, Palaeocene horizon of Dutch Guinea and recent sediments of Bermuda and Mexican Gulf.

Genus: Neonesidea Maddocks, 1869, Neonesidea schulzi (Hartmann), 1964 (a) Holotype. U.S.N.M. 121253 (b) Repository, M.G.M./Dept. Geol./Pal. Lab. Sl. No. 3.


Dimensions (mm):

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<tr>
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<td>0.63</td>
<td>1) Left valves larger than the right valves.</td>
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<tr>
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<td>0.36</td>
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<tr>
<td>T</td>
<td>0.25</td>
<td>0.21</td>
<td>2) Sexual dimorphism indistinct.</td>
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Material: Ten shells (5 adults), only males.

Remarks: Left valves exhibit postero-ventral denticles and few are without dentitions and both are free from platelet and spines. Our shell shows rosette muscle scars in central position, elongate, eight in number and amongst them the central one appears to be splitting type. Normal pores scattered type and radial pore canals sparsely arranged and not clear. Hinge is simple without crenulations. These shells are reported from Galle Harbour, Ceylon, Mombasa, Kenya, Andromache Reef, Mayotte Islands, Comores, Bimini Islands, Great Bahama Bank and from Madagascar. Inter-tidal collection at Prince Edward Island (Indian Ocean) by Fuller.


Dimensions (mm):

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<td>H</td>
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<tr>
<td>T</td>
<td>0.20</td>
<td>0.10</td>
</tr>
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</table>

Material: Fifteen shells (10 adults), including five complete shells, both males and females.

Remarks: Our shell is similar to Bairdopililata sp., in outline but differs from it in having anterior and posterior teeth. B. pondra Jennings differs from our shell in having more convex posterior and dorsal margins. B. willisensis Puri, differs in its posterior elongation with that of our species shell. Posterior and antero-ventral curvature of B. giberti Keij, differs from the species under description. Outline of B. leyvensis Howe, is slightly different from that of B. carinata Kornicker Dorso-anterior margin of the B. rhomboidalis Moyes, differs from our shell. Shell of B. poddari Lubimova and Mohan, has the deltoid shape compared to typical “Bairdoid” shape of our shell. B. vietrix Brady, has affinities to our shells, but differs in having posterior marginal slope and the inner lamella. Our specimen slightly differs from Bahamas species in the position of the muscle scar area Kornicker. These shells are reported from younger Cenozoics of Malaya, Java and Sumatra. Recent sediments of Abu Dhabi of Persian Gulf, bottom cores of Adriatic Sea floor, sediments of Bay of Naples. From the recent marine sediments of Great Bahama Bank (M.L. Jones). In India reported from the Upper Tertiary deposits of Kutch. Cenozoic sub-crops of Cauvery basin, Neogene deposits of Andamans and recent bottom sediments of Indian Ocean.

Discussion

Bairdia, is continuing from Ordovician to Recent and therefore it has not been viewed seriously for a

Figures 1-14. 1-3, A. Neonesidea cracenticlavula Maddocks, 1969 × 64. 4-6, B. Paranesidea ef. P. fracticoralificola Maddocks, 1969. × 64. 7-9, C. 10-12, D. Neonesidea schulzi (Hartmann), 1964. × 64. 13, 14, E. Bairdopililata carinata Kornicker, 1961. × 64.
long time in stratigraphy. Kornicker classified this group into Bairdia and Bairdopilata based on carapace morphology. Whereas, Morkoven considered Bairdopilata as a synonym of "Bairdia", Sylvester-Bradley expressed more or less the same opinion. Puri classified this group into three genera, namely, Bairdia, Bairdopilata and Triebelina, based on the muscle scar pattern.

Maddocks proposed a new classification for the "Bairdia" after a detailed study of shell morphology including soft anatomy, muscle scar pattern and regrouped the fauna into four genera, namely, Neosidea new gen., Paranesidea new gen., Bairdopilata Coryell, Sample and Jennings and Triebelina. He included "Bairdia" in the extinct form and erected a new genus Neosidea to include majority of the recent forms. He further clubbed deep water species into the genera Paranesidea and Bairdopilata, but retained Triebelina. Hartmann and Puri raised "Bairdia" to the super-family rank and followed the same diagnostic characters of Maddocks.

In the light of the above discussion the authors adopted the classification proposed by Kornicker and Maddocks for the taxonomic purposes.

The statistical data and percentage calculation of Bairdiidae shells of the area under investigation have revealed the presence of 13.0% adults, 6.0% juveniles, 3.3% complete shells, 16.6% separated ones, 6.7% right valves, 13.3% left valves, 8.5% males, 11.8% females, 10.0% colourless, 6.7% milky white, 3.3% yellow shells and complete absence of predation and pyritisation shells.

The sediments of the area are rich in heavy minerals such as hornblende, epidote, garnet and tourmaline, besides opaques which are reddish to dark brownish in colour.

ECOLOGY

The sedimentological and ostracod faunal ratios data have indicated that the ostracod shells were deposited in a coastal agitated sea water, where the rate of deposition was slow with penetration of sunlight. Further such as the absence of predation and pyritisation also support that the sediments were deposited at slow rate in a clear sea water under turbulent shallow marine conditions. The heavy minerals reveal that these have been brought from westerly flowing rivers not far from seashore of gneissose and schistose provenance.

ACKNOWLEDGEMENTS

The authors are grateful to Dr. V. Venkatachala-pathy, Professor and Head of the Department of Geology, Manasa Gangotri, Mysore, for his encouragement and fruitful comments. One of the authors SA is grateful to the UGC for the Junior Research Fellowship during the tenure of which the work on the Bhakatal area (West Coast of India, Karnataka State) was carried out.

5 July 1982; Revised 20 February 1983