Five new species of benthic Foraminifera from the Hungarian Palaeogene Basin

by
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Abstract — Five new Eocene species of benthic Foraminifera are described from 3 boreholes (Csákberény 89, Devecser 4, Csetény 61) and from the classical Upper Eocene section of Mátyás-hegy, Budapest, Hungary. The new species are *Textularia tuberosus, Pyrgo microstriatus, Lagena clava, Epistomaroides costatus* and *Gyroidinoides koestleri.*

Keywords — Benthic Foraminifera, new species, Eocene, Hungary.

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Introduction

Fourteen Middle and Upper Eocene (Lutetian–Priabonian) sections from the Hungarian Palaeogene Basin were investigated for their benthic foraminiferal content to reconstruct the palaeoecological and palaeooceanographic development during the final stages of the evolution of the Tethyan Realm (OZSVÁRT, in press). Three hundred and thirty benthic Foraminifera species have been recognized in twelve borehole sections and in two outcrops. Five of the studied species are new.

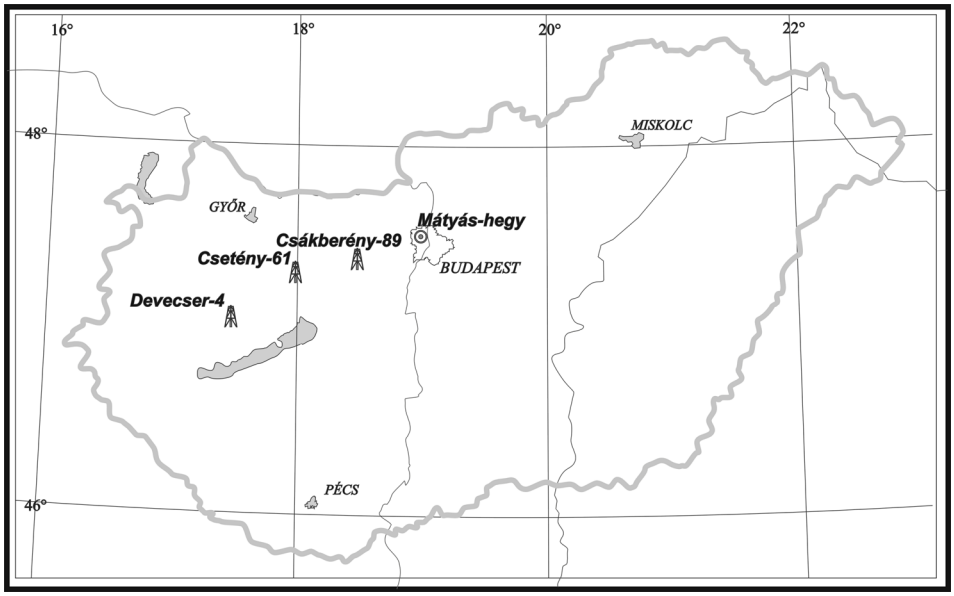


Figure 1 — Location of cores Devecser-4; Csetény-61; Csákberény-89 and the Mátyás-hegy section.

Material and methods

For the present study, samples from three boreholes (Csákberény 89, Devecser 4, Csetény 61) and from an outcrop (Budapest, Mátyás-hegy, western quarry) were investigated (Figure 1). Cores were sampled by the staff of the Hungarian Geological Institute, where samples were washed and picked for benthic Foraminifera. Samples of Mátyás-hegy section were taken by Prof. Miklós MONOSTORI.

Systematics

Subfamily and higher classification in this paper follows that of LOEBLICH & TAPPAN (1988).

Order Foraminifera EHRENBERG,1930
Suborder Textulariina DELAGE & HÉROUARD, 1896
Superfamily Textulariacea EHRENBERG, 1838
Family Textulariidae EHRENBERG, 1838
Subfamily Textulariinae EHRENBERG, 1838
Genus *Textularia* DEFRANCE, 1824

Textularia tuberosus n. sp.
(Plate I: 1–2)

Name — The specific name *tuberosus* refers to 20–30 μm long protuberances on the test.

Holotype — Eötvös Loránd University, Collection of the Department of Palaeontology. No. OP–4448.

Type locality — Budapest, Mátyás-hegy, western quarry.

Type strata — Buda Marl Formation, Bryozoa Marl Member.

Stratigraphical range in Hungary — Upper Eocene (Priabonian)

Dimensions — Length of the test 500–600 μm. Width of the test at widest point 300–400 μm.

Diagnosis — Test free, wall coarsely agglutinated, biserial, elongate, length about one and half times width, oval and slightly compressed in cross-section, periphery acute, invisible or hardly visible sutures, circular to elongate 20–30 μm protuberances on test, aperture is an interiomarginal slit.

Remarks — This species is clearly distinguishable from all other *Textularia* by the long protuberances on the test.

Suborder Miliolina DELAGE & HÉROUARD, 1896
Superfamily Miliolacea EHRENBERG, 1839
Family Spiroloculinidae WIESNER. 1920
Subfamily Miliolinellinae VELLA, 1957
Genus *Pyrgo* DEFRANCE, 1824

Pyrgo microstriatus n. sp.
(Plate I: 3–4)

Name — The specific name *microstriatus* refers to fine, irregularly oriented, longitudinal costae.

Holotype — Eötvös Loránd University, Collection of the Department of Palaeontology. No. OP – 4300.

Type locality — Csákberény 89 borehole.

Type strata — Figured specimens from Csákberény 89 borehole, 307.6–309. 3 m interval and 315.3 – 318.1 meters (Csolnok Marl Formation).

Stratigraphical range in Hungary — Middle Eocene (Lutetian), NP16 Zone.

Dimensions — Length of the test 1000 – 1200 μm. Width of the test at widest point 700 – 900 μm.

Diagnosis —Test free, biloculine, two chambers visible in final whorl, strongly inflated, penultimate chamber slightly smaller than final chamber; wall calcareous, porcellaneous, with fine, irregularly oriented, longitudinal costae; margin rounded; aperture is a circular opening at and of the final chamber with thin tooth.

Remarks — *Pyrgo byramensis* CUSHMAN & TODD from the Oligocene has the same shape in lateral view, but it is distinguished by the fine irregularly oriented, longitudinal costae. *Pyrgo oligocenica* CUSHMAN has the same shape and it has longitudinal costae, but they seem much thicker and stronger.

Suborder Lagenina DELAGE & HÉROUARD, 1896
Superfamily Nodosariacea EHRENBERG, 1838
Family Lagenidae REUSS, 1862
Genus *Lagena* WALKER & JACOB, 1798

Lagena clava n. sp.
(Plate I: 5)

Name — The specific name *clava* refers to mace shape of test.

Holotype — Eötvös Loránd University, Collection of the Department of Palaeontology. No. OP–4150.

Type locality — Devecser 4 borehole.

Type strata —Figured specimen from Devecser 4, 45.6 meter (Padrag Marl Formation).

Stratigraphical range in Hungary — Upper Eocene (Priabonian)

Dimensions — Length of the test 1200 micron. Dia-

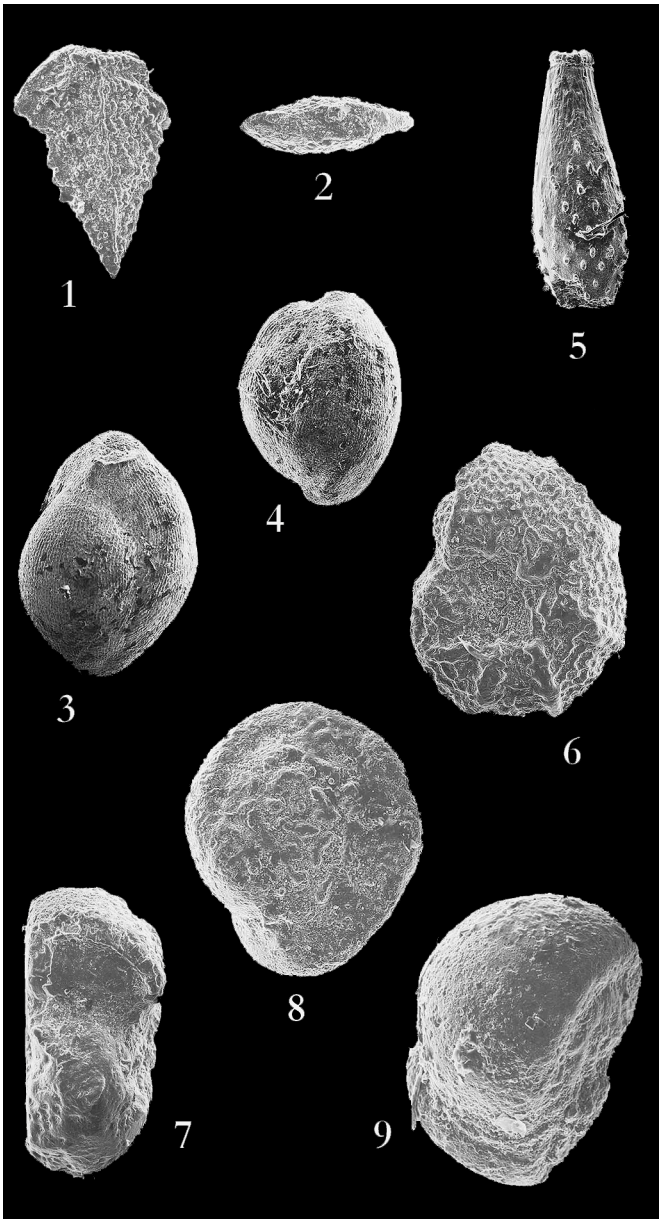
meter of the test at widest part 480–500 μm.

Diagnosis — Test free, unilocular; narrow, elongate, mace-formed in outline; circular in cross-section; wall calcareous, finely perforate, with infrequent, circular to elongate beads; length approximately two and half times bigger than maximum width; aperture terminal.

Remarks — *Lagena clavula* n. sp. displays a longer shape like the similar *Lagena clavulus* HERON–ALLEN & EARLAND.

Suborder Rotaliina DELAGE & HÉROUARD, 1879
Superfamily Acervulinacea SCHULTZE, 1854
Family Alfredinidae S. N. SINGH & KALIA, 1972
Genus *Epistomaroides* UCHIO, 1952

Epistomaroides costatus n. sp.
(Plate I: 6–7)



Name — The specific name *costatus* refers to strongly thick radial costae.

Holotype — Eötvös Loránd University, Collection of the Department of Palaeontology. No. OP–4398; OP–4399; OP–4510.

Type locality — The Devecser 4 borehole.

Type strata —Figured specimens from Devecser 4, 54–56 meters (Padrag Marl Formation).

Stratigraphical range in Hungary — Upper Eocene (Priabonian)

Dimensions — Diameter of the test 700–900 μm. Width of the test 600–700 μm.

Diagnosis — Test free, wall calcareous, coarsely perforate; circular in outline, plano-convex in cross-section; earlier chambers trochospiral, later chambers becoming planspiral, increasing gradually in size; spiral side and umbilical side partially involute, on the umbilical side small umbilical boss visible; radial, strongly thickened sutures on umbilical side; aperture interiomarginal, extending onto spiral side.

Remarks —This form similar to *Epistomaroides affinis,* (HANTKEN) and *Epistomaroides granosa* (HANTKEN), but the radial, strongly, thick sutures on umbilical side quite unique.

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Explanation to Plate I

1 — *Textularia tuberosus* n. sp. — ~ ×170, lateral view.
2 — *Textularia tuberosus* n. sp. — ~ ×250, apertural view.
3 — *Pyrgo microstriatus* n. sp. — ~ ×50, lateral view.
4 — *Pyrgo microstriatus* n. sp. — ~ ×50 lateral view.
5 — *Lagena clava* n. sp. — ~ ×70, lateral view.
6 — *Epistomaroides costatus* n. sp. — ~ ×70, umbilical side.
7 — *Epistomaroides costatus* n. sp. — ~ ×80, apertural view.
8 — *Gyroidinoides koestleri* n. sp. — ~ ×90, spiral side.
9 — *Gyroidinoides koestleri* n. sp. — ~ ×110, apertural view.

Superfamily Chilostomellacea BRADY, 1881
Family Gavelinellidae HOFKER, 1956
Subfamily Gyroidinoidinae SAIDOVA, 1981
Genus *Gyroidinoides* BROTZEN, 1942

Gyroidinoides koestleri n.sp.
(Plate I: 8–9)

Name — The specific name *koestleri* is in honour of ARTHUR KOESTLER, the Hungarian-born novelist, critic and philosopher.

Holotype — Eötvös Loránd University, Collection of the Department of Palaeontology. No. OP–4467; OP–4468.

Type locality — The Csetény 61 borehole.

Type strata —Figured specimens from Csetény 61, 272 meter (Padrag Marl Formation).

Stratigraphical range in Hungary — Middle Eocene (Lutetian – Bartonian) to Upper Eocene (Priabonian)

Dimensions — Diameter of the test 800 – 900 μm. Width of the test at widest point 800–900 μm.

Diagnosis — Test free, wall calcareous, finely perforate; high trochospiral, plano-convex in cross section, spiral side evolute and planar, umbilical side involute and strongly convex with narrow umbilicus; circular in outline; 6–8 chambers in final whorls, increasing gradually in; 80–100 μm protuberances visible on spiral side elongate of test; aperture interiomarginal slit, extending from umbilical side to spiral side.

Remarks — This form is somewhat similar to *Gyroidinoides soldanii* (D'ORBIGNY), but the elongate (80–100 μm) protuberances on the spiral side quite unique.

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