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Kaminskiinae n.subfam. and *Kaminskia* n.gen., A NEW EARLY CRETACEOUS CALCAREOUS AGGLUTINATED FORAMINIFERA FROM SOUTHERN DOBROGEA, ROMANIA

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Abstract: This study presents the earliest known calcareous-cemented agglutinated Foraminifera with a typical textulariacean wall structure occurring in the Lower Cretaceous (uppermost Berriasian to lower Hauterivian) of southern Dobrogea. Based on the external morphology of the test and the canaliculate structure of its chamber wall, the author erects the new genus *Kaminskia*, within the new subfamily Kaminskiinae. The following species are newly described: *Kaminskia flabellata, K. cuneata, K. acuta, K. filiformae, K. exigua,* and *K. dissimile.*

Abstrakt: W artykule opisano najstarsze ze znanych taksonów otwornic aglutynujących o wapiennych ścianach z rodziny Textulariacea, występujące w osadach dolnej kredy (najwyższy berias–dolny hoteryw) w południowej Dobrudży w Ru- munii. W oparciu o cechy zewnętrzne skorupek oraz obecność prostych (nierozwidlających się) kanalików wewnątrz ścian komór, autor opisał nowy rodzaj *Kaminskia*, zaliczając go do nowej podrodziny Kaminskiinae. W obrębie nowego rodzaju opisano nowe gatunki: *Kaminskia flabellata, K. cuneata, K. acuta, K. filiformae, K. exigua* i *K. dissimile.*

Key words: Calcareous-cemented agglutinated Foraminifera, Textulariacea, new taxa, Early Cretaceous, Roma nia.

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INTRODUCTION

Within the extremely rich and well-preserved Foraminiferal assemblages from the Lower Cretaceous of southern Dobrogea in Romania, alongside the miliolids and involutinids that have already been described (Neagu, 1987, 1994, 1995), there exist remarkable assemblages of calcareous-cemented agglutinated Foraminifera that are well-preserved and are found in large numbers. These assemblages consist of primitive agglutinated genera with calcareous cement, largely belonging to the Superfamilies Loftusiacea and Ataxophragmiacea (Neagu, 1997; Neagu, *in print*). In association with these previously described forms, some representatives of the textulariaceans are also found. This group displays large morphological variability and is rich in numbers of specimens and in species. The external morphology of the group is strongly homeomorphic with the cuneolinids, and in particular with the genus *Scythiolina* Neagu, 1999. However, the taxonomic group investigated in this study can be readily distinguished based upon the structure of the chamber wall. The presence of a canaliculate wall structure instead of a reticulate wall, and the absence of secondary septula distinguishes this new group from the cuneolinids.

The presence of a canaliculate wall represents the fundamental character that distinguishes the superfamily Textulariacea Ehrenberg, 1838 (Loeblich & Tappan, 1987, p. 168). The chamber arrangement of the early stage and the apertural characteristics are important criteria to distinguish families and subfamilies within the group. Following these taxonomical criteria, which I entirely agree with, I regard the textulariaceans from the Lower Cretaceous of southern Dobrogea as representing a new taxonomical entity that is well-delimited and separate from all other so-called textulariaceans known from the Mesozoic. Because this group represents an evolutionary event that is well-separated from the evolution of the Cenozoic canaliculate genera of the family Textulariidae, I introduce the new genus *Kaminskia*, belonging to the new subfamily Kaminskiinae.

MATERIAL

Samples for this study were collected from outcrops situated on the right bank of the Danube River near Cernovoda, from a quarry in nearby Alimanu village, and from boreholes drilled between Poarta Alba and Ovidiu near Constanta (Fig. 1). In southern Dobrogea, the exposed upper Berriasian to Valanginian marine deposits consists of zoogenous, muddy to clearly winnowed calcarenites and

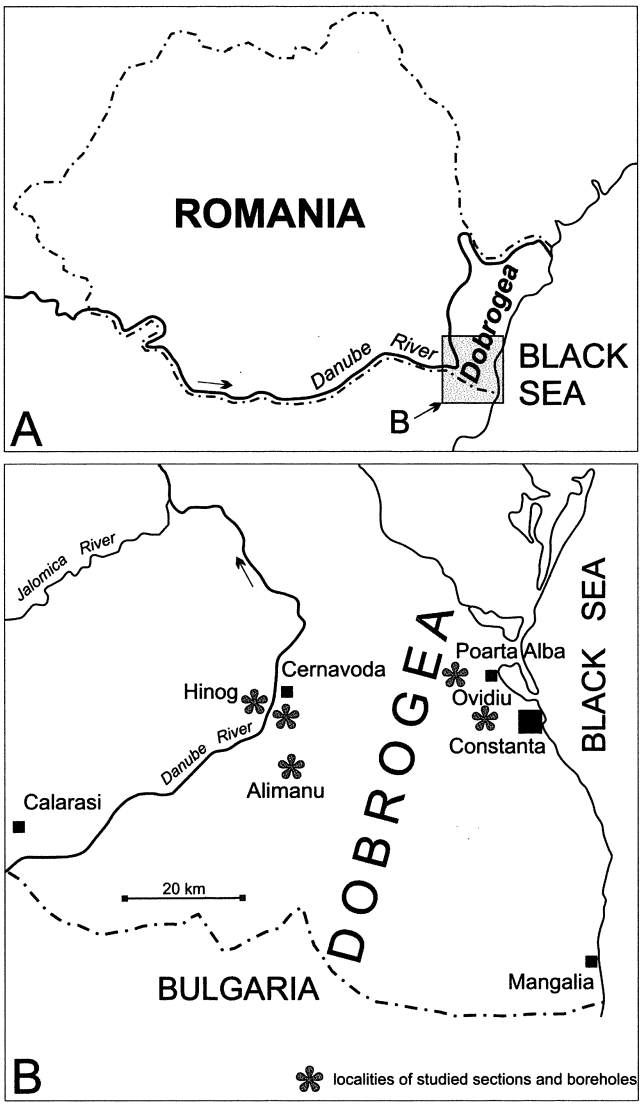

Fig. 1. Geographic sketch map of Romania (**A**) with location of studied sections and boreholes in the southern Dobrogea (**B**)

calcirudites with abundant fossils (Neagu *et al.*, 1997). The macrofauna is highly diversified, and comprise spongies, hexacorals, molluscs, gastropods, pelecypods, brachiopods, crinoids, holothurids, asterozoans, annelids, ammonoids, and nautiloids. The microflora includes cyanophycean, rhodophycean and chlorophycean algs. The microfauna is represented mainly by foraminifers. Among the foraminifers, the involutinids (predominantly trocholinids) dominate there. Moreover, textularids and miliolids occur as frequent.

The fossil assemblage evolved under normal marine to slighty brackish conditions with a high degree of water tubulence and a reduced terrigenous influx in the shallow water, intertidal to upper subtidal environments (Neagu *et al.*, 1997). The faunal evolution was influenced by short-term eustatic sea-level changes, superposed on the general regressive trend characterizing the Late Valanginian. The studied deposits are overlain by "Purbeckian" continental-lacustrine or lagoonal deposits.

The stratigraphy of the area has been discussed in greater detail by Dragastan *et al.* (1998).

SYSTEMATIC PALEONTOLOGY

Superfamily TEXTULARIACEA Ehrenberg, 1838
Family TEXTULARIIDAE Ehrenberg, 1838

Diagnosis of the family Textulariacea (Ehrenberg, 1838): "Test biserial, at least in the early stage, later may be reduced to uniserial; wall agglutinated, canaliculate; aperture interiomarginal to areal, single or multiple."
Stratigraphic distribution: Lower Cretaceous; Paleocene to Holocene.

Subfamily Kaminskiinae Neagu, n.subfam.
Type genus: *Kaminskia* Neagu, n.gen.

Diagnosis of the subfamily Kaminskiinae: Test textulariiform to flabelliform, consisting of a short planispiral initial stage of 3–5 chambers followed by a biserial stage that may be flattened in the plane of biseriality. Chambers are simple, without any vertical or horizontal septula. Wall thick, canaliculate, medium to finely agglutinated, with calcareous cement. Aperture an interiomarginal slit.
Remarks: This subfamily differs from other representatives of the family Textulariidae in its early planispiral stage and frequently flattened adult stage, and in its earlier stratigraphical occurrence. It differs from the family Spiroplectamminidae in possessing a canaliculate wall structure.

Genus *Kaminskia* Neagu, n.gen.
Type species: *Kaminskia flabellata* Neagu, n.sp.

Etymology: This genus is dedicated to my friend Dr. Michael A.Kaminski (UCL), in recognition to his excellent and valuable contributions to the study of agglutinated foraminifera.
Description: Test free, consisting of a short planispiral stage of 3–5 chambers followed by a textulariid biserial stage which may be flattened in the plane of biseriality until it becomes flabellate in outline. Sutures weakly depressed, straight to arcuate. Chambers are simple, not subdivided by secondary septula. Test medium to finely agglutinated with calcareous cement; chamber wall is thick and perforated by simple, straight canaliculi (typical for textulariaceans). Aperture a simple interiomarginal slit.
Remarks: Some species of the genus are externally homeomorphic to the Cuneolininae, but differ in the presence of their canaliculate wall structure and in the absence of any internal septula.

Kaminskia flabellata Neagu, gen. et sp. nov.
Fig. 2 (1–6, 25, 27–34); Fig. 3 (9–22, 25–28); Fig. 4 (1–4); Fig. 10 (1, 2); Fig. 11 (1–6)

Etymology: From the Latin word flabellum *-i*, meaning fan (from the shape of the test).
Type-locality: Holotype – ISPH drillings F. VIII Nazarcea, 68.50 m; Paratypes – Cernavoda Pod, right bank of the Danube River, Ilie Barza's Quarry; Alimanu Quarry; ISPH drilling Ovidiu F.VIII/B, 68 m, 76 m; ISPH drilling Hinog C.2, 42 m, 43 m; ISPH drilling Hinog C.12, 92.60–93 m.
Type specimens: Holotype = LPB IV. 11244; Paratypes = 11245–11250.
Type-level: Uppermost Berriasian to lower Valanginian.
Description: Test with a very short initial planispiral stage consisting of 3–5 chambers, followed by a biserial stage that is flattened in the plane of biseriality, finally becoming flabelliform in outline. Chambers are wide in the adult flabelliform stage, simple, without any secondary septula, and are separated by weakly depressed sutures. Wall is thick, medium to coarsely agglutinated

with calcareous cement, and perforated by simple canaliculae. Aperture a simple low interiomarginal slit.
Measurements (mm): Holotype length – 0.65; width – 0.65; thickness – 0.29.
Paratypes length – 0.39–0.70; width – 0.36–0.72; thickness – 0.24–0.29 (figured specimens).
Paratypes length 0.39–0.96; width – 0.36–0.55; thickness – 0.21–0.24 (unfigured specimens).
Remarks: The shape of the test is externally similar to that of *Scythiolina flabellii* Neagu, but the new species differs in lacking internal septula and in possessing a thick canaliculate agglutinated wall.
Stratigraphic distribution: Uppermost Berriasian to lower Hauterivian.
Deposition of types: Laboratory of Paleontology, University of Bucharest.

Kaminskia cuneata Neagu, gen. et sp. nov.
Fig. 2 (7–24); Fig. 3 (1–8, 23, 24, 29); Fig. 4 (5–9); Fig. 5 (1–36); Fig. 6 (23–42); Fig. 10 (3–6); Fig. 11 (7–16); Fig. 12 (16, 17)

Etymology: From the Latin cuneatus *-i*, meaning wedge (from the shape of the test).
Type locality: Holotype – Cernavoda Pod, right bank of the Danube River; Paratypes – Ilie Barza's Quarry; Alimanu Quarry; ISPH drilling Nazarcea F.VIII, 68.50 m; ISPH drilling Ovidiu F.VIII/B, 68 m, 76 m; ISPH drilling Hinog C.2, 42 m, 43 m; ISPH drilling Hinog C.11, 82.00–82.90 m; ISPH drilling Hinog C.12, 92.20–93.00 m.
Type specimens: Holotype = LPB IV, 11251; Paratypes = 11252 – 11258.
Type level: Lowermost Valanginian.
Description: Test of medium to large size with a typical wedge-shaped outline, consisting of a very short initial planispiral stage of 3–5 chambers followed by a well-developed biserial stage. Chambers are without any internal secondary septula, increase gradually in width, and are separated by straight or weakly arched, depressed sutures. Wall is thick, medium to coarsely agglutinated with calcareous cement, and perforated by simple canaliculae. Aperture a simple low interiomarginal slit.
Measurements (mm): Holotype length – 0.58; width – 0.31; thickness – 0.29.
Paratypes length – 0.43–0.89; width – 0.29–0.60; thickness – 0.24–0.38 (figured specimens).
Paratypes length – 0.43–1.20; width – 0.29–0.50; thickness – 0.24–0.29 (unfigured specimens).
Remarks: This species differs from *Kaminskia flabellata* Neagu and *Kaminskia acuta* Neagu in its shape, which is that of an isocilese triangle.
Stratigraphic distribution: Uppermost Berriasian to lower Hauterivian.
Deposition of types: Laboratory of Paleontology, University of Bucharest.

Kaminskia acuta Neagu, gen. et sp. nov.
Fig. 4 (10–15); Fig. 5 (37–41); Fig. 6 (1–22); Fig. 7 (46–62); Fig. 11 (17–20); Fig. 12 (1, 2)

Etymology: From the Latin acutus, *-i*, *-um*, meaning pointed (from the shape of the test).
Type locality: Holotype – Cernavoda Pod, right bank of the Danube River. Paratypes – Ilie Barza's Quarry; Alimanu Quarry, Lake Vederoasa Quarry; ISPH drilling Poarta Alba F.4, 61.00–62.50 m; ISPH drilling Nazarcea F.VIII, 68.50 m; ISPH drilling Ovidiu F.VIII/B, 68 m, 76 m; ISPH drilling Hinog C.2, 42–43 m; ISPH drilling Hinog C.4, 82.00–82.90 m; ISPH drilling Hinog C.12, 92.90–93.00 m; ISPH drilling Hinog C.13, 49 m.
Type specimens: Holotype = LPB IV, 11259; Paratypes = 11260 – 11266.
Type level: Lower Valanginian.
Description: Test of medium to large size, weakly compressed in the plane of biseriality, in the shape of a pointed triangle. Initial planispiral stage is very short, consisting of 3–5 chambers followed by a well-developed biserial stage. Sutures straight, weakly depressed. Wall is thick, medium to coarsely agglutinated with calcareous cement, and perforated by simple textularoid canaliculae. Aperture a simple low interiomarginal slit.
Measurements (mm): Holotype length – 0.72; width – 0.31; thickness – 0.24.
Paratypes length – 0.40–0.86; width – 0.24–0.34; thickness – 0.24–0.29 (figured specimens).
Paratypes length – 0.40–1.32; width 0.24–0.46; thickness – 0.24–0.31 mm (unfigured specimens).
Remarks: This species is well delimited from *Kaminskia cuneata* by its narrow test shape.
Stratigraphic distribution: Uppermost Berriasian to lower Hauterivian.
Deposition of types: Laboratory of Paleontology, University of Bucharest.

Kaminskia filiformae Neagu, gen. et sp. nov.
Fig. 4 (16–19); Fig. 8 (7–51); Fig. 10 (12–14); Fig. 12 (18–26)

Etymology: From the Latin filum, *-i*, meaning thread (from the shape of the test).
Type locality: Holotype – Cernavoda Pod, right bank of the Danube River; Paratypes – Alimanu Quarry; ISPH drilling Poarta Alba F.4, 61.00–62.30 m; ISPH drilling Hinog C.4, 47 m, 49 m; ISPH drilling Hinog C.11, 82.00–82.90 m; ISPH drilling Hinog C.12, 92.20–93.00 m.
Type specimens: Holotype = LPB IV, 11267; Paratypes = 11268 – 11271.
Type level: Lower Valanginian.
Description: Test of medium to large size, strongly elongated, filiform, flattened in the plane of biseriality. Initial planispiral stage is very short, consisting of 3–5 chambers followed by long, filiform biserial stage with 8 to 12 pairs of chambers. Sutures straight, depressed. Wall is thick, medium to finely agglutinated with calcareous cement, and perforated by simple textularoid canaliculae. Aperture a simple low interiomarginal slit.
Measurements (mm): Holotype length – 0.96; width – 0.21; thickness – 0.21.
Paratypes length 0.43–0.91; width – 0.19; thickness – 0.19–0.24 (figured specimens).
Paratypes length – 0.19–1.08; width – 0.19–0.29; thickness – 0.19–0.24 (unfigured specimens).
Remarks: This species is very well delimited by the distinctive shape of the test. Its canaliculate wall structure distinguishes it from homeomorphic species belonging to the genus *Spiroplectammina*.
Stratigraphic distribution: Uppermost Berriasian to lower Hauterivian.
Deposition of types: Laboratory of Paleontology, University of Bucharest.

Kaminskia exigua Neagu, gen. et sp. nov.
Fig. 4 (20–23); Fig. 7 (1–43); Fig. 9 (23–33); Fig. 10 (7–10); Fig. 11 (21–26); Fig. 12 (3–12)

Etymology: From the Latin exiguus, *-a*, *-um*, meaning short (from

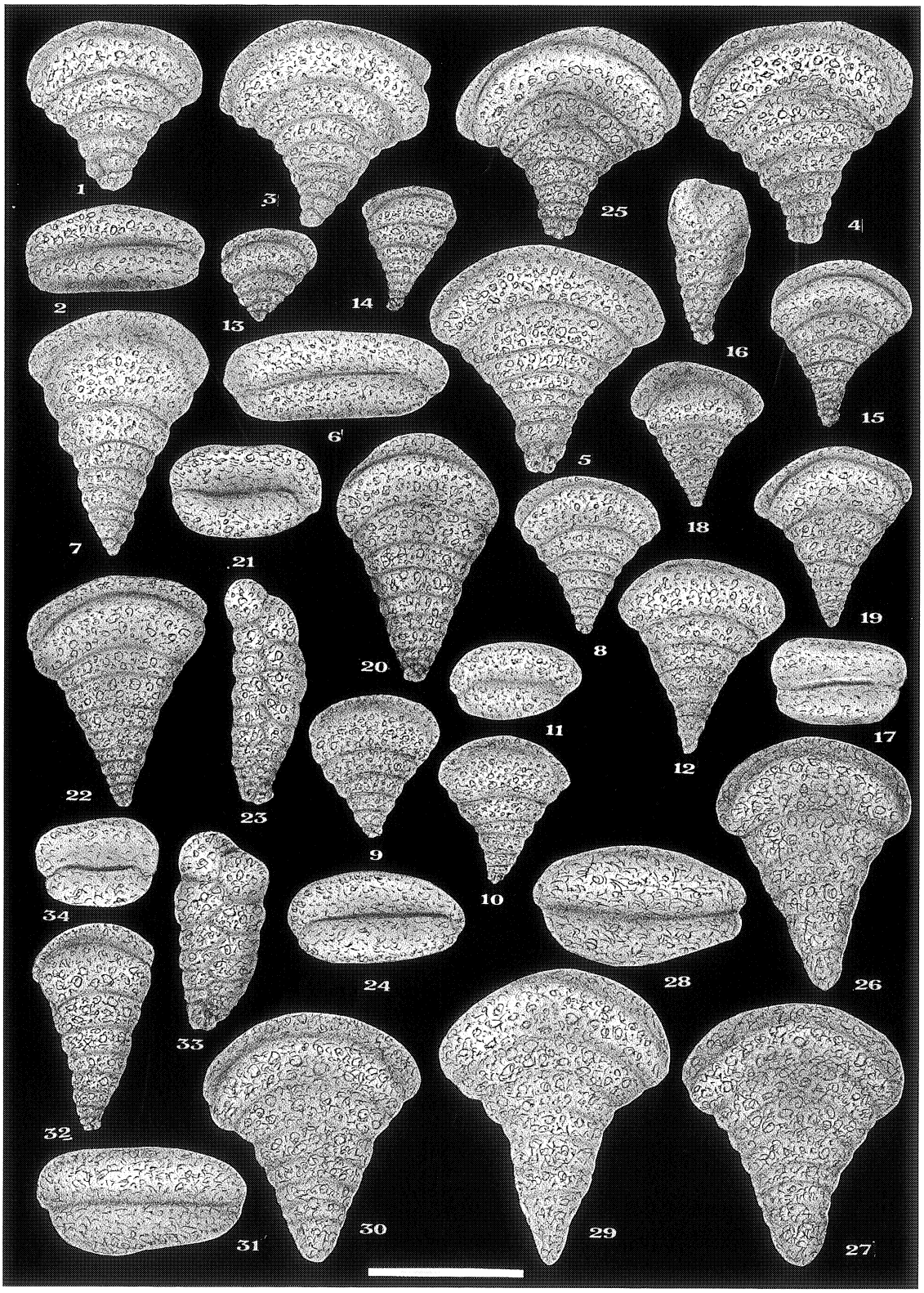

Fig. 2. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-6.** *Kaminskia flabellata* Neagu, gen. et sp. nov.: 5-6. Holotype = LPB.IV.11244, uppermost Berriasian, ISPH Drillings, Nazarcea F.VIII, 68.50 m; 1-4. Paratypes = LPB.IV.11245, uppermost Berriasian, Nazarcea F.VIII, 68.50 m. **7-24.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: 15-16. Holotype = LPB.IV.11251, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 7. Paratype = LPB.IV.11253, lower Hauterivian, Alimanu; 8-12. Paratypes = LPB.IV.11252, uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m; 13-24. Paratypes = LPB.IV.11254, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **25.** *Kaminskia flabellata* Neagu, gen. et sp. nov.: Paratype = LPB.IV.11245, lower Valanginian, Cernavoda, Ilie Barza's Quarry. **26.** *Kaminskia cuneata* Neagu, gen. et sp. nov. **27-34.** *Kaminskia flabellata* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11246, lower Valanginian, Cernavoda Pod, right bank of the Danube River. Scale bar – 0.5 mm

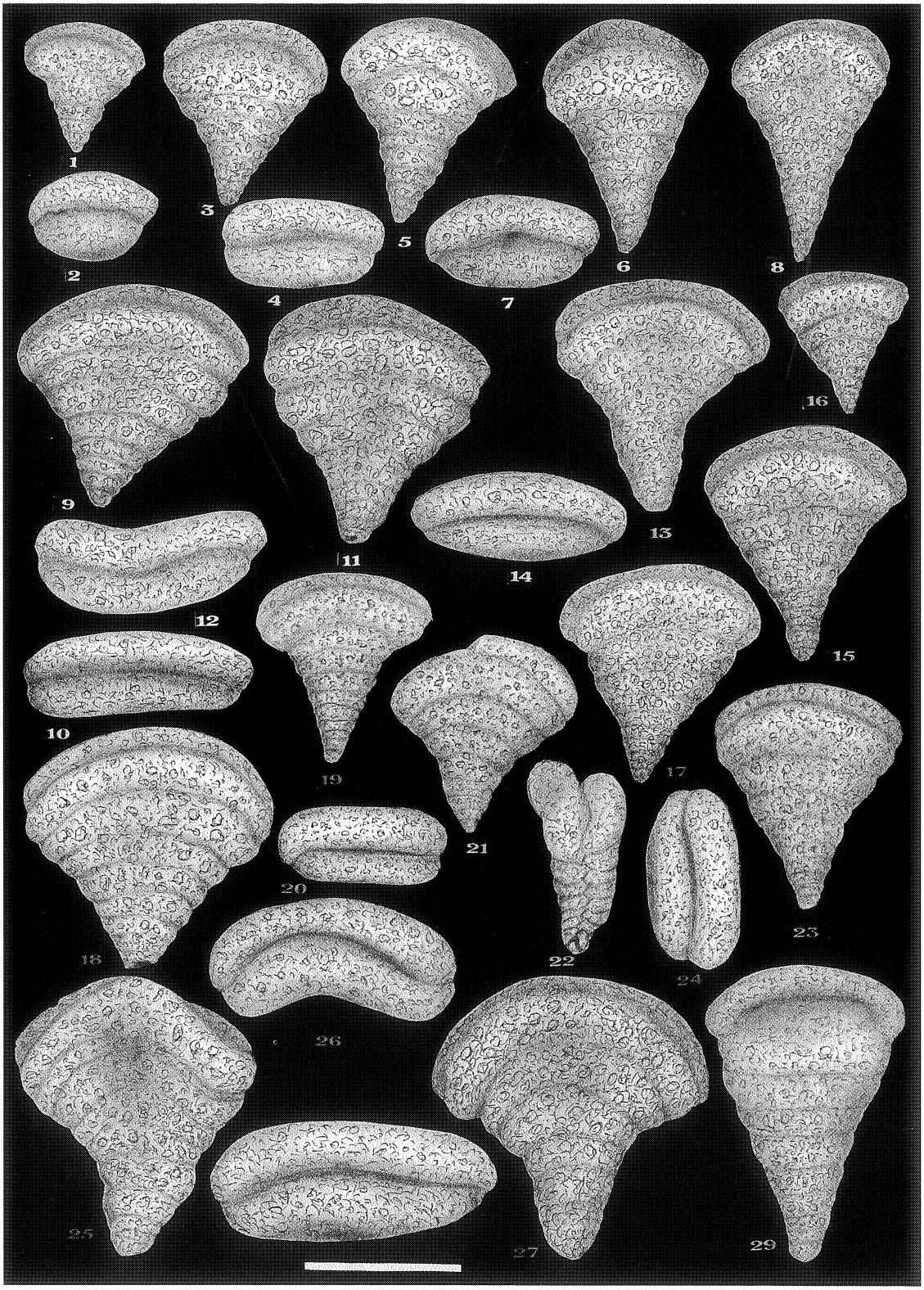

Fig. 3. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-8.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: 1-8. Paratypes = LPB.IV.11255, lower Valanginian, Cernavoda, Ilie Barza's Quarry. **9-22.** *Kaminskia flabellata* Neagu, gen. et sp. nov.: 9-17. Paratypes = LPB.IV.11245, lower Valanginian, Cernavoda, Ilie Barza's Quarry; 18-22. Paratypes = LPB.IV.11246, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **23-24.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11254, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **25-28.** *Kaminskia flabellata* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11246, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **29.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: Paratype = LPB.IV.11254, lower Valanginian, Cernavoda Pod, right bank of the Danube River. Scale bar – 0.5 mm

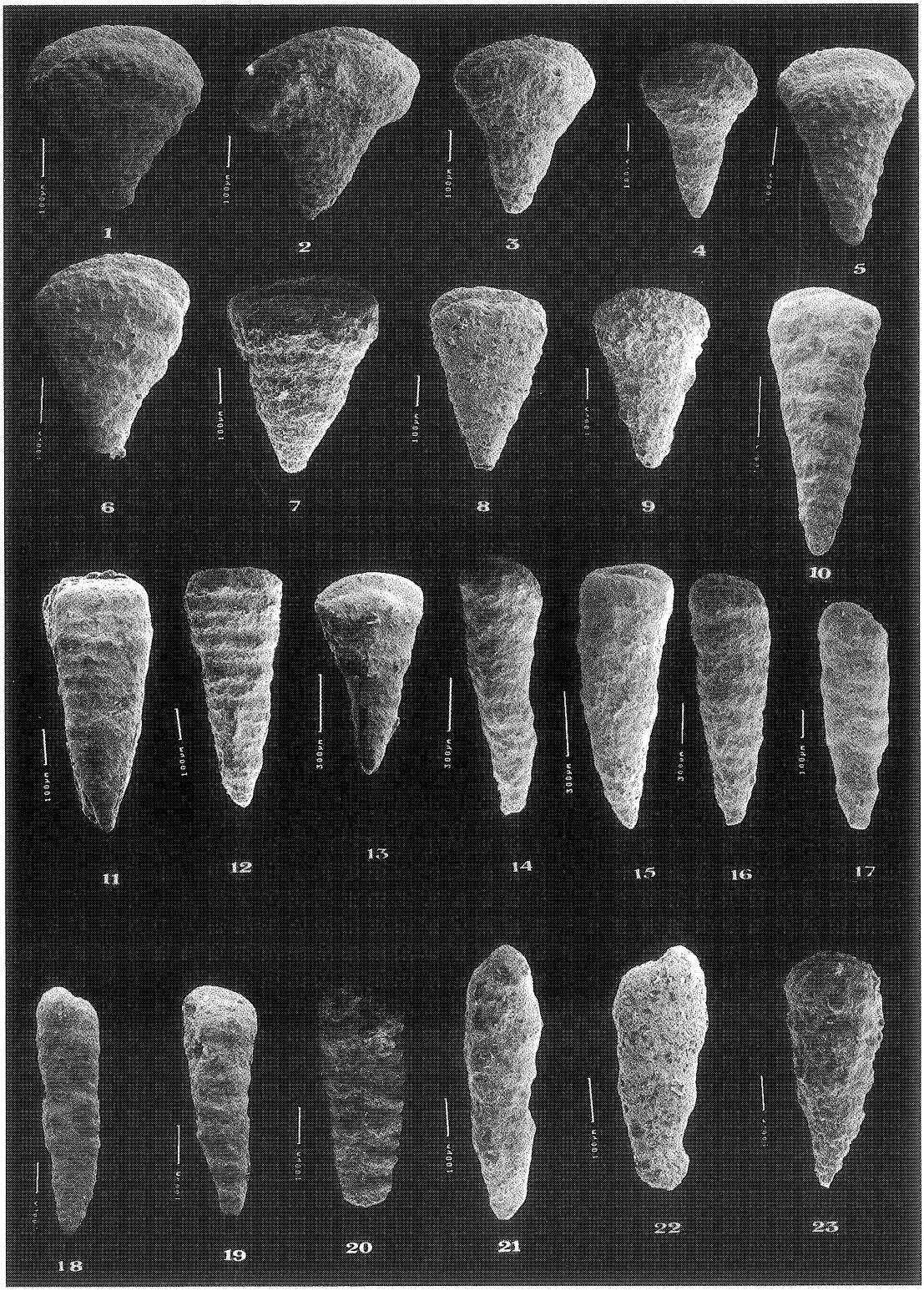

Fig. 4. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-4.** *Kaminskia flabellata* Neagu, gen. et sp. nov.: Paratypes = , uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m. **5-9.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: Paratypes = uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m. **10-15**. *Kaminskia acuta* Neagu, gen. et sp. nov.; Paratypes = lower Valanginian, Cernavoda Pod, right bank of the Danube River. **16-19.** *Kaminskia filiformae* Neagu gen. et sp. nov.: Paratypes = lower Valanginian, Cernavoda Pod, right bank of the Danube River. **20-23.** *Kaminskia exigua* Neagu, gen. et sp. nov.: Paratypes = lower Valanginian, Cernavoda, Ilie Barza's Quarry. Scale bar – 0.5 mm

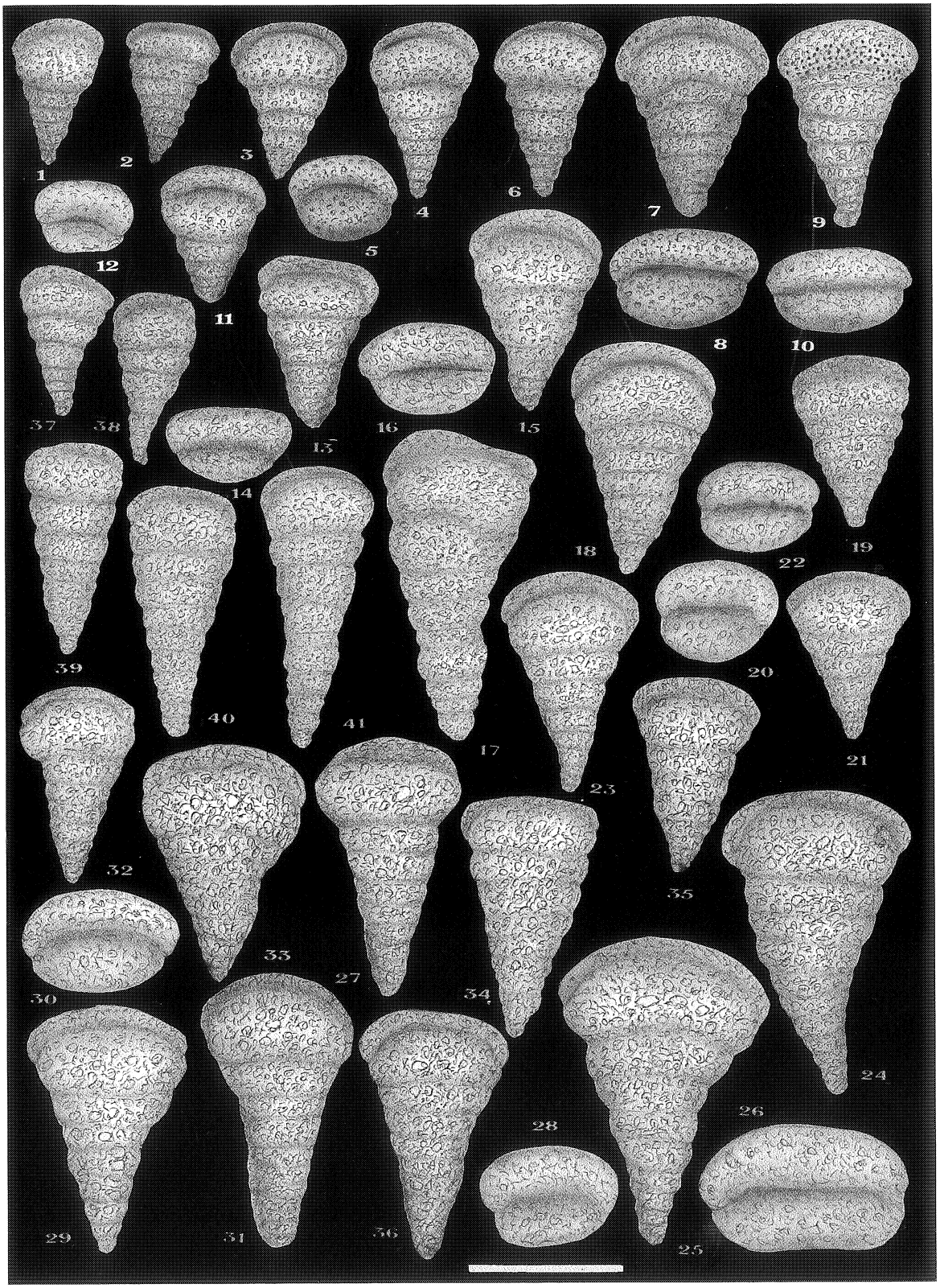

Fig. 5. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-36.** *Kaminskia cuneata* Neagu, gen. et sp. nov., 15-16: Holotype = LPB.IV.11251, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 1-8. Paratypes = LPB.IV.11252, uppermost Berriasian, ISPH drilling Nazarcea F.VIII, 68.50 m; 9-14, 19-36; Paratypes = LPB.IV.11254, lower Valanginian, Cernavoda Pod, right bank of the Danube River, LPB.IV.11254. 17-18. Paratypes = LPB.IV.11253; lower Valanginian, Alimanu. **37-41**. *Kaminskia acuta* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11261, Alimanu. Scale bar – 0.5 mm

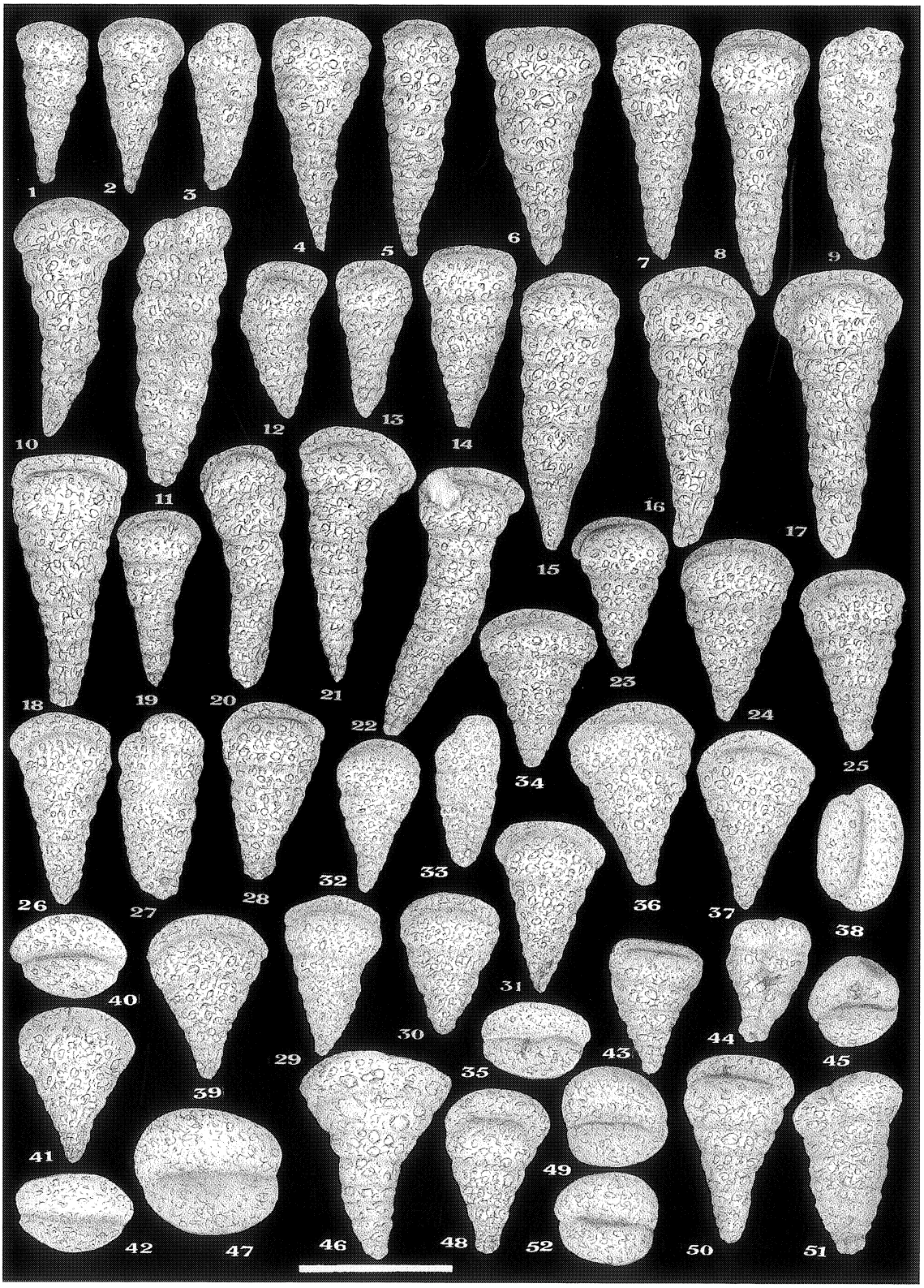

Fig. 6. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-22.** *Kaminskia acuta* Neagu, gen. et sp. nov.: 6. Holotype = LPB.IV11259, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 1-5. 12-22. Paratypes = 11260, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 7-11. Paratypes = LPB.IV.11261, Alimanu. **23-42.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: 23-31. Paratypes = LPB.IV.11254, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 32-42. Paratypes = LPB.IV.11252, uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m. **43-52.** *Kaminskia dissimile* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11283, uppermost Berriasian, ISPH drillings Hinog C.12, 92-93 m. Scale bar – 0.5 mm

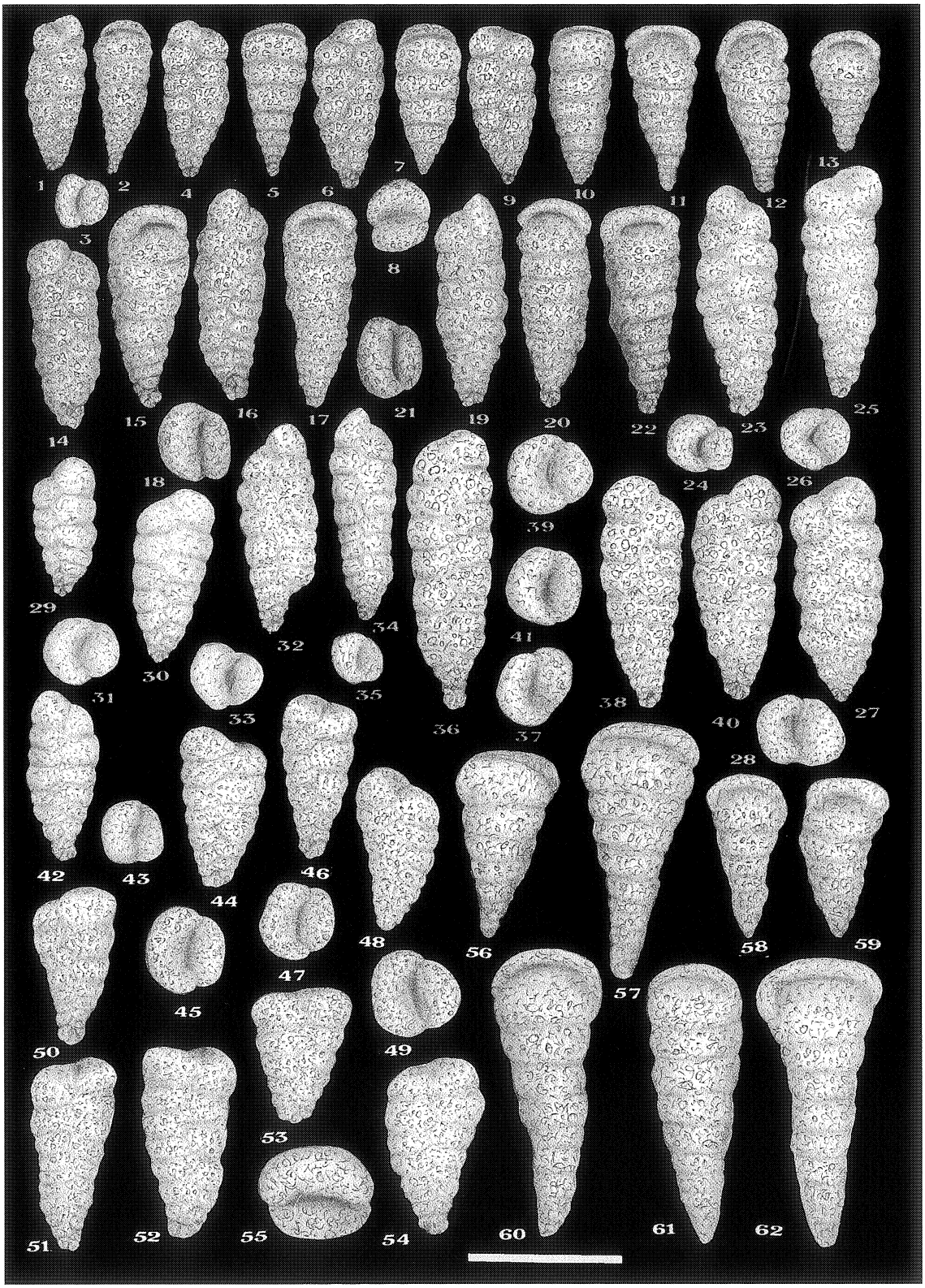

Fig. 7. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-43.** *Kaminskia exigua* Neagu, gen. et sp. nov.: 30-31. Holotype = LPB.IV. 11272, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 1-10. Paratypes = LPB.IV. 11274, lower Valanginian, Cernavoda, Ilie Barza's Quarry, LPB.IV; 11-22. Paratypes = LPB.IV.11277, uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m; 23-29, 32-35, 42-43 Paratypes = LPB.IV.11273, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 36-41. Paratypes = LPB.IV.11276, Valanginian, Alimanu. **44, 45.** *Kaminskia dissimile* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11282, uppermost Berriasian, ISPH drillings Hinog C.12, 92-93 m. **46-62.** *Kaminskia acuta* Neagu, gen. et sp. nov.: Paratypes = LPB.IV. 11260, lower Valanginian, Cernavoda Pod, right bank of the Danube River. Scale bar – 0.5 mm

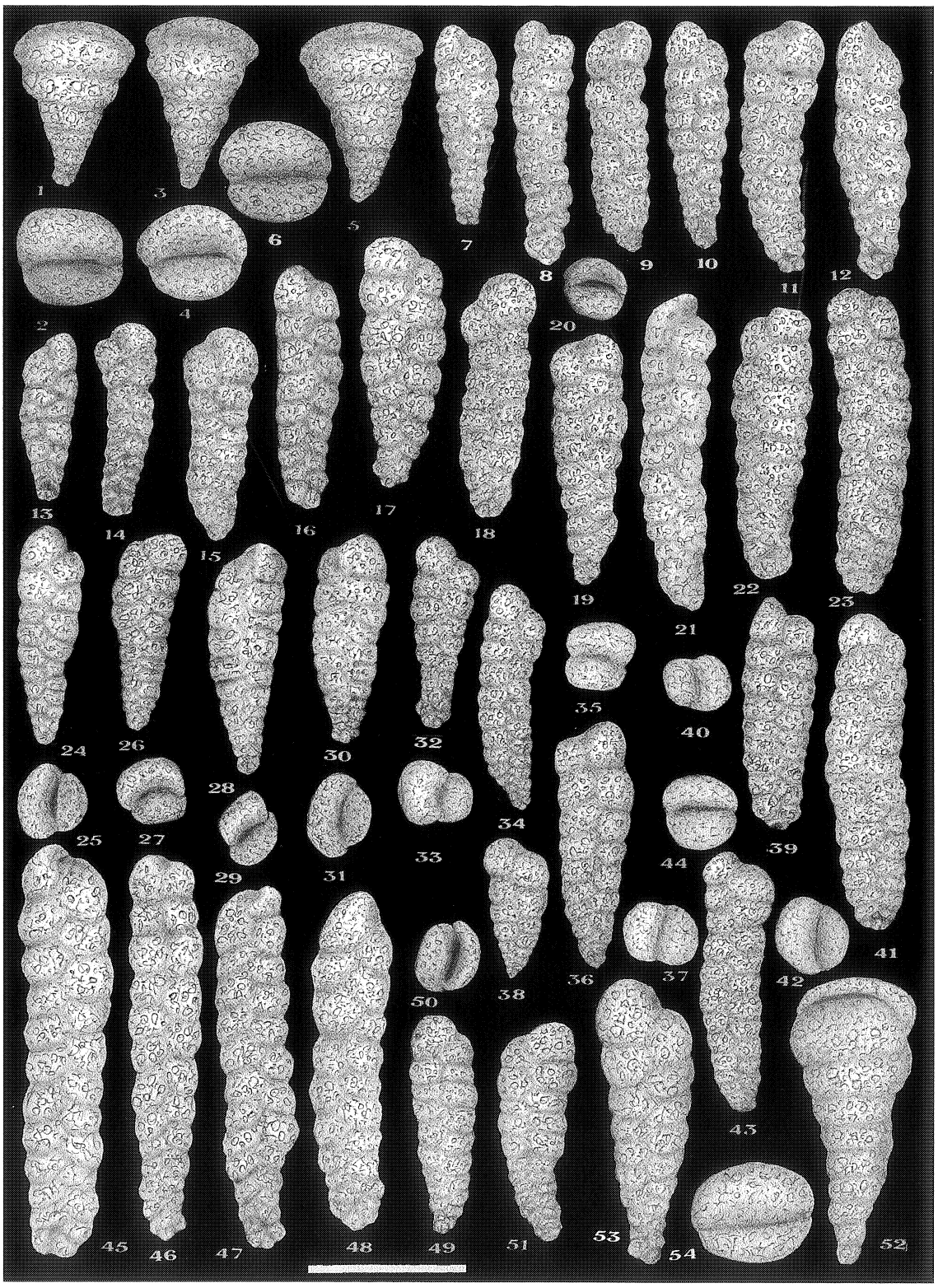

Fig. 8. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-6.** *Kaminskia dissimile* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11283, uppermost Berriasian, ISPH drillings Hinog C.12, 92-93 m. **7-51.** *Kaminskia filiformae* Neagu, gen. et sp. nov.; 41-42. Holotype = LPB.IV.11267, lower Valanginian, Cernavoda Pod, right bank of the Danube River; 7-22, 45. Paratypes = LPB.IV.11269, lower Valanginian, Alimanu Quarry; 23-40, 44, 46-51. Paratypes = LPB.IV.11268, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **52-54.** *Kaminskia acuta* Neagu, gen. et sp. nov. Valanginian, Alimanu. Scale bar – 0.5 mm

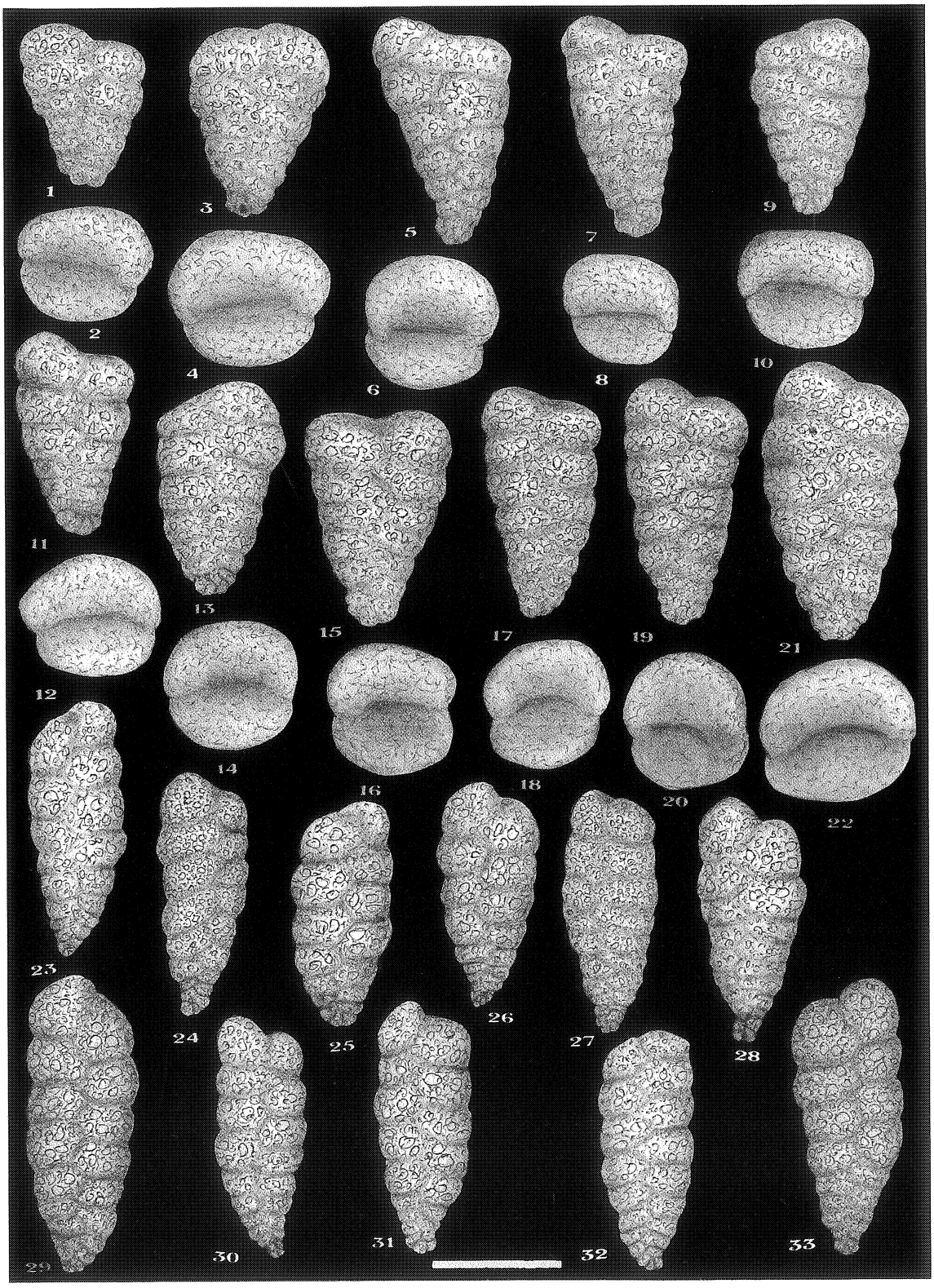

Fig. 9. Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-22.** *Kaminskia dissimile* Neagu, gen. et sp. nov.: 1-2. Paratype; 3-4. Holotype; 5-14. Paratypes = LPB.IV.11281, uppermost Berriasian, ISPH drilling Hinog C.12, 92-93 m; 15-22. Paratypes = LPB.IV. 11282, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **23-33.** *Kaminskia exigua* Neagu, gen. et sp. nov.: Paratypes = LPB.IV.11274, lower Valanginian, Cernavoda Pod, right bank of the Danube River. Scale bar – 0.3 mm

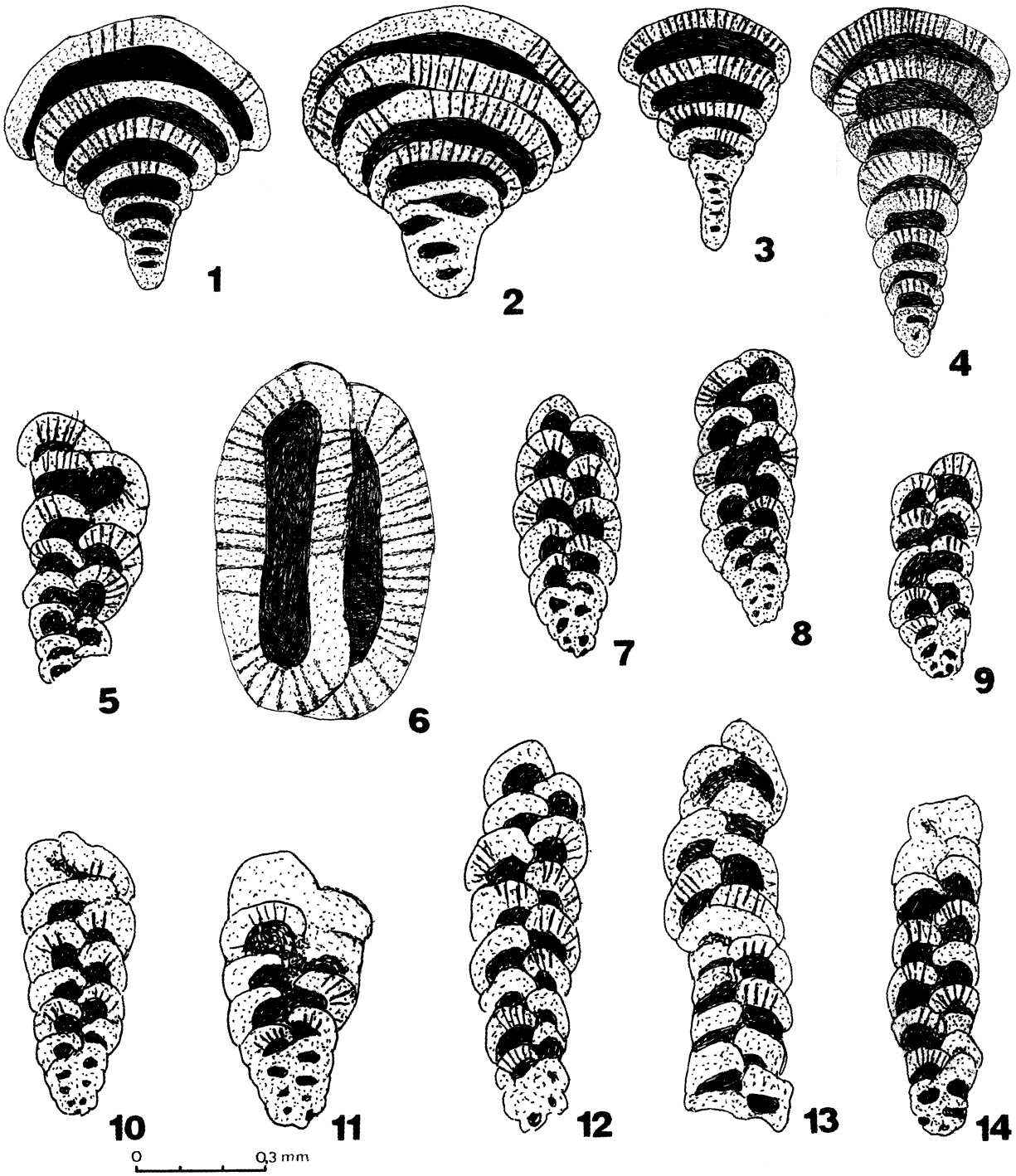

Fig. 10. Schematic structure of the different species of the genus *Kaminskia* n.gen., illustrating the caniculate wall structure. **1, 2.** *Kaminskia flabellata* Neagu n.sp.; **3-6.** *Kaminskia cuneata* Neagu n.sp.; **7-10.** *Kaminskia exigua* Neagu n.sp.; **11.** *Kaminskia dissimile* Neagu n.sp. **12-14.** *Kaminskia filiformae* Neagu n.sp.

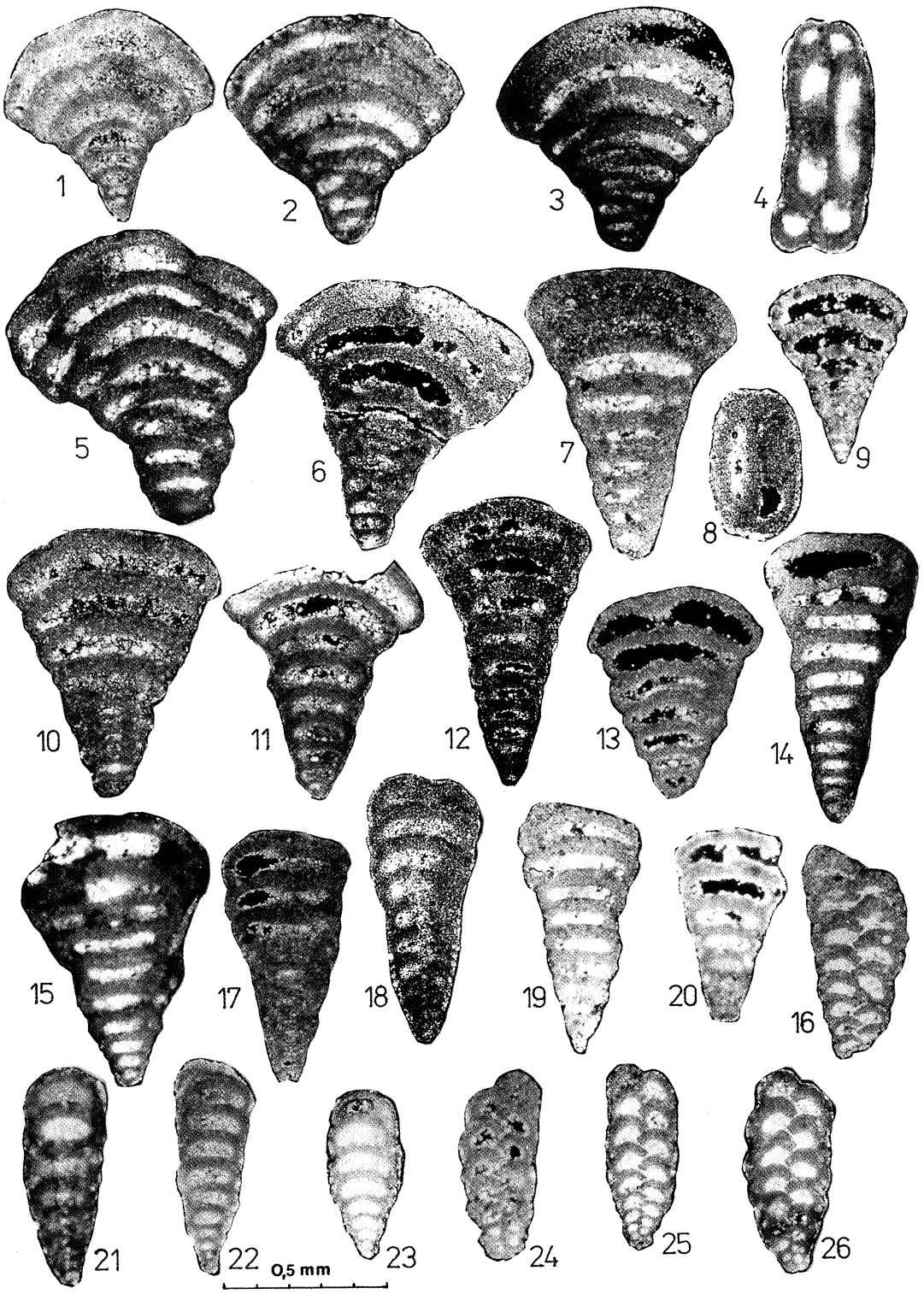

Fig. 11. Thin sections of Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1-6.** *Kaminskia flabellata* Neagu, gen. et sp. nov.: 1, 6. Paratypes, uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m; 2-5. Paratypes, lower Valanginian, Cernavoda, Ilie Barza's Quarry. **7-16.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: 8, 9, 11-13. Paratypes, uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m; 10, 14-17. Paratypes, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **17-20.** *Kaminskia acuta* Neagu, gen. et sp. nov.: 17. Paratypes, ISPH drilling Hinog C.11, 82-83 m, 18-20. Paratypes, Nazarcea F.VIII, 68.50 m. **21-26.** *Kaminskia exigua* Neagu, gen. et sp. nov.: 21, 23, 25-26. Paratypes, lower Valanginian, Cernavoda, Ilie Barza's Quarry; 22-23. Paratypes, uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m

Fig. 12. Thin sections of Lower Cretaceous agglutinated Foraminifera from subfamily Kaminiskiinae. **1, 2.** *Kaminskia acuta* Neagu, gen. et sp. nov.: Paratypes, uppermost Berriasian, ISPH drillings 1. Hinog C.12, 82 m. 2. Ovidiu B.VIII, 68 m. **3-12.** *Kaminskia exigua* Neagu, gen. et sp. nov.: 3-5, 8, 12. Paratypes, lower Valanginian, Cernavoda, Ilie Barza's Quarry; 6. Paratype, Valanginian, Alimanu Quarry; 7, 9, 10. Paratypes, ISPH drillings, Nazarcea F.VIII, 68.50 m. **13-15.** *Kaminskia dissimile* Neagu, gen. et sp. nov.: Paratypes, uppermost Berriasian, ISPH drillings, Hinog C.12, 92.60–93.00 m. **16, 17.** *Kaminskia cuneata* Neagu, gen. et sp. nov.: 16. Paratype, uppermost Berriasian, ISPH drillings Nazarcea F.VIII, 68.50 m; 17. Paratype, lower Valanginian, Cernavoda Pod, right bank of the Danube River. **18-26.** *Kaminskia filiformae* Neagu, gen. et sp. nov.: Paratypes, uppermost Berriasian, ISPH drillings: 18. Hinog C.12, 92.60–93.00 m; 19. Hinog C.12, 47 m; 20-23. Paratypes, Valanginian, Alimanu Quarry. 24-26. Paratypes, lower Valanginian, Cernavoda Pod, right bank of the Danube River

the shape of the test).
Type locality: Holotype – Cernavoda Pod, right bank of the Danube River; Paratypes – Ilie Barza's Quarry; Alimanu Quarry; Banks of Lake Vederoasa; ISPH drilling Nazarcea F.VIII, 68.50 m; ISPH drilling Ovidiu F.VIII/B, 68 m, 76 m; ISPH drilling Hinog C.2, 42–43 m; ISPH drilling Hinog C.4, 47m, ISPH drilling Hinog C.13, 49 m.
Type specimens: Holotype = LPB IV, 11272; Paratypes = 11273 – 11279.
Type level: Lower Valanginian.
Description: Test small, consisting of a very small planispiral stage with 3–5 chambers followed by a biserial stage with weakly globular chambers. Sutures are straight and depressed. Wall is thick, medium agglutinated with calcareous cement, and perforated by simple canaliculae. Apertural face convex. Aperture a simple low interiomarginal slit.
Measurements (mm): Holotype length – 0.48; width – 0.19; thickness – 0.19.
Paratypes length – 0.39–0.60; width – 0.14–0.26; thickness – 0.17–0.24 (figured specimens).
Paratypes length – 0.37–0.72; width – 0.14–0.31; thickness – 0.17–0.26 (unfigured specimens).
Remarks: This species is characterised by its small size and pupoid shape (as in the pupal stage of an insect). Its canaculate wall structure and planispiral early stage differenciate it from the genus *Textulariopsis*.
Stratigraphic distribution: Uppermost Berriasian to lower Hauterivian.
Deposition of types: Laboratory of Paleontology, University of Bucharest.

Kaminskia dissimile Neagu, gen. et sp. nov.
Fig. 6 (43–52); Fig. 8 (1–6); Fig. 9 (1–22); Fig. 10 (11); Fig. 12 (13–15)

Etymology: From the Latin dissimile, meaning disimilar or unlike (after the unusual shape of the test).
Type locality: Holotype – ISPH drilling Hinog C.12, 92.60–93.00 m; Paratypes – Cernavoda Pod, right bank of the Danube River, ISPH drilling Hinog C.2, 42–43 m; ISPH drilling Hinog C.13, 49 m.
Type specimens: Holotype = LPB IV, 11280; Paratypes = 11281–11283.
Type level: Uppermost Berriasian.
Description: Test small, in the shape of a rounded cone that is slightly flattened laterally, consisting of a short planispiral stage with 3–5 chambers followed by a short biserial stage of 6–8 pairs of chambers. Chambers increase in size gradually, sutures straight, weakly depressed. Wall is thick, medium agglutinated with calcareous cement, and perforated by simple canaliculae. Apertural face is concave (as in *Marssonella oxycona*). Aperture a simple low interiomarginal slit.
Measurements (mm): Holotype length – 0.34; width – 0.26; thickness – 0.21.
Paratypes length – 0.30–0.53; width – 0.24–0.26; thickness – 0.21–0.26 (figured specimens).
Paratypes length – 0.34–0.60; width – 0.24–0.31; thickness – 0.21–0.24 (unfigured specimens).
Remarks: This species differs from *Kaminskia exigua* Neagu by its conical shape and concave apertural face.
Stratigraphic distribution: Uppermost Berriasian to lower Hauterivian.
Deposition of types: Laboratory of Paleontology, University of Bucharest.

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This study would not have been possible without samples from ISPH drillings given to the author by Prof. Dr. Ion Bancila, Member of the Romanian Academy, to whom the author expresses his gratitude. The author also thanks Dr. Mike Kaminski (London) who reviewed the article for publication; to Dr. Paulian Dumitrica (Switzerland) for the SEM photographs; and to Marius Stoica (LPB) who made the photographs of the thin sections.

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Streszczenie

Kaminskiinae n.subfam. i *Kaminskia* n.gen., NOWE TAKSONY WCZESNOKREDOWYCH OTWORNIC AGLUTYNUJĄCYCH Z POŁUDNIOWEJ DOBRUDŻY W RUMUNII

Theodor A. Neagu

W obrębie dobrze zachowanych zespołów otwornicowych z Dobrudży w południowej Rumunii znaleziono otwornice aglutynujące o ścianach scementowanych spoiwem wapiennym. Autor opisał we wcześniejszych pracach nowe rodzaje i gatunki z nadrodzin Loftusiacea i Ataxophragmiacea (Neagu, 1997; Neagu, w druku).

W niniejszej pracy opisano nowe taksony z nadrodziny Textulariacea, wydzielając w jej obrębie podrodzinę Kaminskiinae oraz rodzaj *Kaminskia*. Wszystkie opisane otwornice należą do zespołu z najmłodszego beriasu do wczesnego hoterywu. Nowe gatunki (*Kaminskia flabellata, K. cuneata, K. acuta, K. filiformae, K. exigua* i *K. dissimile*) charakteryzuje gruba, porowata ścianka, z

prostymi (nierozwidlającymi się) kanalikami. Obecność porowatej ścianki pozwala na zaszeregowanie opisanych taksonów do rodziny Textulariacea.

Podrodzina Kaminskiinae stanowi według autora oddzielną gałąź ewolucyjną textularii, które znane były dotychczas jedynie z trzeciorzędowych osadów. Wydzielona podrodzina jest zatem najstarszą z opisanych gałęzii w/w grupy otwornic aglutynujących.