

A new fusulinid genus (Erkina) from Elmadağ region, Ankara - Turkey

Elmadağ (Ankara) bölgesinden yeni bir fusulinid genusu, (Erkina)

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ABSTRACT : The new genus *Erkina* is described with *E. ankarensis* n.gen.n.sp., as genotype, *E. minuta* n.sp. and *E. n. sp.*, The structural features of *Erkina* and the associated fusulinids suggest that *Erkina* is the upper part of Middle Permian in age.

ÖZ : Bu yazıda yeni bir fusulin cinsi olan *Erkina*'nın tanımı, genotipi olan *E. ankarensis* n.gen.n.sp. ile *E. minuta* n.sp. ve *E.n.sp.* türleriyle verilmektedir. *Erkina*'nın yapı özellikleri ve birliğinde bulunan diğer fusulinlere göre, stratigrafik düzeyinin orta Permian'ın en üst düzeyi olduğu saptanmıştır.

INTRODUCTION

The limestone blocks of the late Palaeozoic age have wide - spread occurrence around the city of Ankara. The blocks embedded in a clastic matrix contain a rich microfauna of upper and middle Permian forms. This fauna mainly consists of Algae and Foraminifera with diverse fusulinids.

In an earlier study of these diverse fusulinids, the author has found a new Polydiexodina species (Okan 1978) belonging to Polydiexodina zone of the middle levels of the Upper Permian (Erk 1977). The new fusulinids, described in this paper, occur in a stratigraphic level which is inferred to take place immediately in the Neoschwagerina - Verbeekina zone, equalling to the upper part of middle Permian. The new genus and the other associated Foraminifera have been discovered mainly in the blocks as ed. 157, ed. 183a and Kt. 9 (figure 1). Moreover, Erkina n.gen. and its associated faunal assemblage display a great abundance especially within the blocks of ed. 148, ed. 115 and Gs. 33, which preserve their primary bedded structure. It is this bedded structure that make it possible to infer the stratigraphic level of these forms.

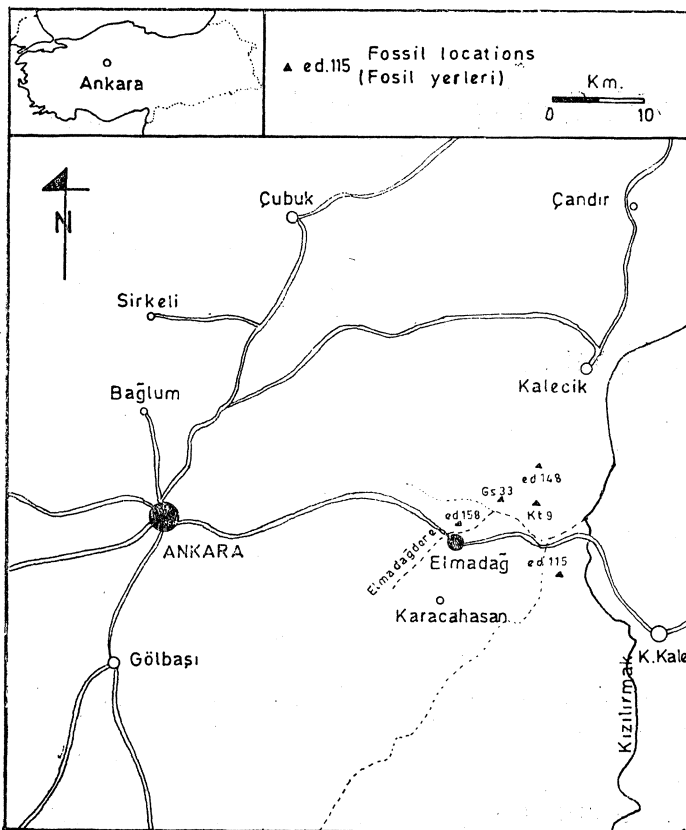


Figure 1 : Sampling and location map.

Şekil 1 : Örnekleme ve yer bulduru haritası.

This fusulinids, like Polydiexodina erki OKAN, Reichelina cribroseptata ERK, Verbeekina verbeeki (GEINÏTZ) and Neoschwagerina ventricose SKINNER, of the associated fauna indicate that the stratigraphic horizon, where Erkina n.gen.is found, belongs to the upper part of middle Permian. Apart from these, there exist a rich fauna of Samatrina annae VOLZ, Palaeofusulina prisca DEPRAT, P. simplex SHENG and CHANG, Kahlerina globosa SKÏNNER. Codonofusiella, Pisolina, Schubertella, Afghanella, Cancellina, Rugososchwagerina, Schwagerina, Neoendothyra, Dimbarula, Glomospira, Lunucammia, Nodosinella, Ammodiscus, Paleotextularia, Tetraxis, Colaniella, Pachyplilolia, Permodiscus, Bradyina, Ammodiscoides, Cribrogenerina, Hemidiscus, Pseudovermiporella, Macroporella, Pycnostroma, Antraeoporella, Tubiphites, Aeolisaccus, Mizzia, Gymnocodium, Pennocalculus.

The material of this study is 41 rock samples, which is taken from limestones blocks in order to prepare special thin - sections. The 27 thin - sections containing axial, equatorial and tangential sections of the new genus are used to describe for Erkina n. gen..

All the studied material are in the collections of the Department of Geology, Faculty of Science, University of Ankara (Turkey).

SYSTEMATIC DESCRIPTION

- Order : FORAMINIFERIDA Eichwald 1830
 Family : FUSULINIDAE Möller 1878
 Subfamily : SCHWAGERININAE Dunbar and Henbest 1930
 Genus : ERKINA, new genus
 Genotype : *Erkina ankarensis* n. gen. n. sp.
 Derivation of name : The genus dedicated to Prof. Dr. A. Suat Erk

Diagnosis : The shell is medium - sized, and the shape is subspheric to fusiform. The most discriminative characters of this form »lie the thick keriotheca with its rather coarse texture, and the shape of alveoli resembling upside - down cones. The length is between 1.22 - 7.04 mm, the width is between 0.53 - 5.44 mm. and the form - ratio is 1,16-2.30. Erkina n. gen. has 4 or 5 volutions and the average septal counts of each volutions are 9, 17, 24, 32 and 36, respectively.

Description : Spirotheca consists of tectum and a simple keriotheca. Keriotheca is not divisible into its upper and lower parts (plate I figure 1, plate II figures 1, 2, 3) (Thompson, 1951; Sundharawat and Nogami, 1972). It will be appropriate here to make diagrammatic comparison between the test forms of new genus Erkina with two Schwagerina species (figure 2) (Thompson, 1946, Skinner and Wilde, 1965).

As shown in figure 2, the most significant feature of all 3 shell types are the coarse alveoli. The total length of 10 alveoli of Erkina is about 0.61 mm, while the same value in Schwagerina is 0.26 mm.

The coarse textured spirotheca is fairly thick, and it shows a regular thickness-increase from inner to outer volutions. This special spirotheca structure of the new genus can easily be seen in the larger forms (plate I figure 1), while in the smaller forms it needs a special effort to see, such as using microscope with bigger magnifications (plate II figures 4-7).

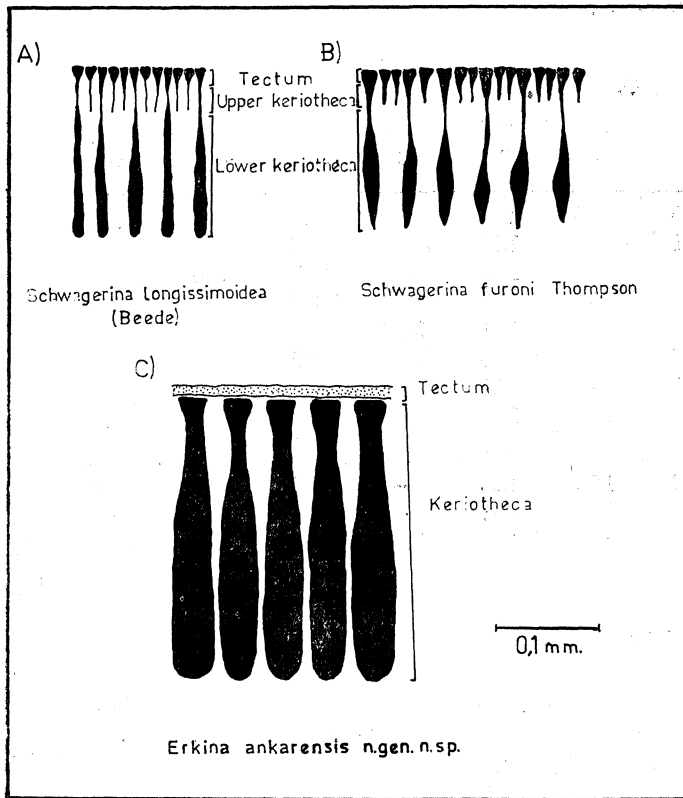


Figure 2 : Schematic comparison between the wall structures of *Schwagerina longissimoidea* (BEEDE), *S. furoni* THOMPSON and *Erkinia ankarensis* n. gen. n. sp.
Şekil 2 : *Schwagerina longissimoidea* (REEDE), *S. furoni* THOMPSON ve *Erkinia ankarensis* n. gen. n. sp. nin duvar yapılarının şematik kıyaslaması.

The alveoli of this new genus are fine textured in the half of the first volution. They show a rather coarse texture in the following half of the first and in the whole second and third volutions. Afterwards, the proceeding volutions gradually become finer, displaying finest texture in the last volution. This fine nature of the last volution may seem to be a major difference in character. However, it is the author's opinion that this difference is ontogenetic.

Remarks: This new genus, with respect to the size and shape of the shell, roughly resembles *Schwagerina*. But the test form particular displays a basic difference from that of *Schwagerina*.

An interesting feature is the development of alveoli as upside-down cones; resembling one of the *Schwagerina*

species. As a matter of fact, this similarity was our starting point of comparison of the wall textures of these species*. However, an important point is worth to consider here: in the genus *Schwagerina*, the spirotheca is composed of tectum, lower keriotheca and upper keriotheca (Thompson, 1951, plate 10, figure 2). But the upper keriotheca connected with the upper parts of normally positioned alveoli may cause a pseudo-appearance as if the cones are upside-down. In other words, the alveoli of *Schwagerina* are set normally, while *Erkinia* contain a single keriotheca with upside-down situated conical alveoli. This is the most important difference of two genus.

Some forms display an axial filling which is not very pronounced, and some others do not have any filling at all. *Schwagerina* has the same of these characters.

The tunnel angles are very well observable in some forms. The angle is generally obtuse and the author thinks it could be formed as a result of living together with Algae in an environment of prolific algal growth. Sometimes it is even possible to see dead individuals completely surrounded by filament algae.

of *Erkinia*.

Moreover, the time range of *Schwagerina* is wider than

Occurrence: According to our preliminary inferences, the genotype species occur in the upper part of the middle Permian. But with further investigations, and specially when the facies relations are taken into consideration, it is highly probable to find them in upper Permian as well.

***Erkinia ankarensis* n. gen. n. sp.**
(Plate I, figure 2-6)

Derivation of name: The name of this new sp., taken from the city of Ankara, the place of occurrence.

Holotype: (plate I, figure 2, 3) (115.7.2. and 115.2.3).

Paratype: (plate I, figure 4-6) (115.15.6) (115.6.1 and 115.13.2).

Type locality : Northeast of Elmadağ village.

Type level: Upper part of the middle Permian, Neoschwagerina - Verbeekina zone.

Diagnosis: The shell is medium sized and subspheric, the poles are rounded, the length range is 3.62-7.04 mm, with an average length of 5.47 mm. The mean width is 4.11 mm, ranging from 2.72 to 5.44 mm. The form-ratio ranges between 1.26-2.02 and the mean value is 1.50. With respect to this value it approaches to fusiform. The axis of coiling is almost straight.

The proloculus is completely spherical with a rather large outside diameter of 0.32-0.55 mm, the mean being 0.44 mm.

The first two volutions, in general, are relatively tightly coiled. The coil starts to loosen after the second volution, and it tightens again with the last volution, the height of which is less than the previous one. The reason for this is probably ontogenetic. The mean radius vector values of 24 specimens for 5 volutions are 0.25, 0.47, 0.84, 1.34, 1.84 and 2.39 mm respectively.

The spirotheca is thick and composed of tectum and keriotheca. Both of these two layers of spirotheca can be easily observed along the whole coil. The thickness of the spirotheca, measured for 5 volutions in 23 specimens is 0.03, 0.08, 0.12, 0.15, 0.16 and 0.15 mm, respectively.

The septa are prominent and curved. The mean numbers of 14 specimens are 9, 17, 24, 32 and 36.

The tunnel space increases regularly from beginning to the end of coil. The tunnel angle measured in 9 specimens

ranges from $W > 50$ and the mean value is 34° . The axial fillings is absent or rarely present.

Remarks: *Erkina ankarensis* n. sp. as mentioned previously, is similar to *Schwagerina furoni* THOMPSON in some respects. But it differs greatly with regard to the alveolar structure of keriotheca. Especially the one layered keriotheca, and the upside-down cone shaped alveoli are the main discriminating characters. Pertinent quantitative data concerning *Erkina ankarensis* n. sp. is present in the tables 1, 2 and 3.

Table 1 : Measurement (in millimeters) of *Erkina ankarensis* n. sp.

Specimen	Pro.	Leng.	Widt.	F.R.	Half Length								
					0	1	2	3	3,5	4	4,5	5	
115.8.1	0.50	5.76	4.16	1.38	0.29	0.45	0.74	1.31			2.18		2.88
111.11.1	0.45	7.04	3.49	2.02	0.29	0.51	0.97	1.95			3.52		
115.1.4	0.38	6.40	4.80	1.33	0.22	0.58	0.96	1.76			2.72	3.20	
115.2.4	0.38	5.76	2.88	2.00	0.22	0.48	0.96	1.63			2.88		
115.7.4	0.38	4.35	2.75	1.58	0.22	0.38	0.84	1.31	2.18				
115.16.1	0.45	5.06	3.68	1.37	0.25	0.67	1.25	1.86			2.53		
115.1.1	0.32	3.62	2.72	1.33	0.19	0.61	1.18	1.81					
115.1.3	0.48	6.88	5.41	1.27	0.29	0.64	1.12	1.76			2.43	3.44	
115.7.3	0.48	4.35	3.46	1.26	0.29	0.51	0.90	1.60			2.18		
Maximum :	0.50	7.04	5.41	2.02	0.29	0.67	1.25	1.95	—		3.52	3.44	—
Minimum :	0.32	3.62	2.72	1.26	0.19	0.38	0.74	1.31	—		2.18	3.20	—
Average :	0.42	5.47	3.71	1.50	0.25	0.54	0.99	1.67	2.18		2.63	3.32	2.88

Table 2 : Measurement (in millimeters) of *Erkina ankarensis* n. sp.

Specimen	Thickness of spirotheca					Septal count					Tunnel angle				
	0	1	2	3	3,5	4	4,5	5	1	2		3	3,5	4	4,5
115.9.2	.03	.06	.11	.13		.16			9	16	22		34		
115.11.5	.03	.05	.08	.13		.16	.17		8	16	21		29	25	
115.15.6	.03	.06	.10	.12	.17				7	18	26	19			
115.6.1	.03	.10	.12	.15		.16	.13		11	17	23		30	20	
115.7.2	.03	.07	.10	.13		.16		.16	9	20	23		29		47
115.13.2	.04	.06	.12	.19		.17		.18	9	16	25		34		37
115.15.1	.04	.10	.12	.13		.13			10	16	24		29		
115.18.1	.03	.10	.12	.14	.16				9	21	28	17			
115.1.2	.05	.10	.13	.16		.19			11	17	26		34		
115.2.1	—	.06	.10	.16		.16	.16		12	19	29		33	17	
115.12.1	.04	.11	.16	.18		.16			9	17	27		37		
115.14.1	.03	.08	.10	.13		.13		.13	9	17	23		28		26
115.15.2	.03	.07	.12	.16		.13			9	16	23		34		
115.15.4	.06	.09	.13	.14	.12				8	12	23	24			
115.8.1	.03	.08	.08	.12		.13		.13							31°
115.11.1	.06	.10	.11	.19		.16									47
115.1.4	.03	.04	.08	.13		.16	.19								29
115.2.3	.03	.06	.10	.11		.16									56
115.7.4	.02	.04	.10	.13	.15										34
115.16.1	.04	.07	.13	.14		.13									30
115.1.1	.04	.10	.19	.19											18
115.1.3	.04	.10	.16	.19		.19	.15								29
115.7.3	.06	.09	.13	.16		.17									32
Maximum :	.06	.11	.19	.19	.17	.19	.19	.18	12	21	29	24	37	25	47
Minimum :	.02	.04	.08	.11	.12	.13	.13	.13	7	12	21	17	28	17	26
Average :	.03	.08	.12	.15	.15	.16	.16	.15	9	17	24	20	32	21	36

Table 3 : Measurement (in millimeters) of *Erkina anka rends* n. sp.

Specimen	Pro.	Widt.	Radius vector								
			0	1	2	3	3,5	4	4,5	5	
115.9.2	0.38	4.58	0.22	0.45	0.86	1.44			2.29		
115.11.5	0.35	3.58	0.19	0.31	0.51	0.92			1.40	1.79	
115.15.6	0.49	2.88	0.24	0.42	0.74	1.12	1.45				
115.6.1	0.50	4.16	0.26	0.42	0.73	1.15			1.63	2.08	
115.7.2	0.45	4.58	0.22	0.40	0.70	1.12			1.63	2.29	
115.13.2	0.40	5.31	0.19	0.43	0.80	1.39			1.86	2.65	
115.15.1	0.55	3.55	0.27	0.55	0.90	1.28			1.77		
115.18.1	0.54	3.94	0.29	0.54	0.96	1.52	1.97				
115.1.2	0.47	4.80	0.27	0.61	1.06	1.70			2.40		
115.2.1	—	3.84	—	0.45	0.86	1.34			1.75	1.92	
115.3.3	0.42	5.44	0.38	0.86	1.28	1.92			2.59	2.72	
115.12.1	0.45	5.12	0.26	0.43	0.83	1.44			2.56		
115.14.1	0.45	5.10	0.25	0.43	0.90	1.42			1.92	2.55	
115.15.2	0.54	3.84	0.27	0.45	0.76	1.22			1.92		
115.15.4	—	4.64	—	0.32	1.09	1.76	2.32				
115.8.1	0.50	4.16	0.26	0.39	0.61	0.97			1.40	2.08	
115.11.1	0.45	3.49	0.29	0.45	0.77	1.25			1.01		
115.1.4	0.38	4.80	0.22	0.38	0.74	1.22			1.76	2.40	
115.2.3	0.38	2.88	0.19	0.42	0.75	1.10			1.44		
115.7.4	0.38	2.75	0.20	0.35	0.61	1.02	1.38				
115.1.3	0.48	5.41	0.22	0.58	1.02	1.54			2.02	2.71	
Average :	0.46	4.11	0.25	0.47	0.84	1.34	1.78		1.84	2.27	2.39

Occurrence: *Erkina ankarensis* n. sp. is found in several exposures around Elmadağ, East of Ankara. The surveying stations numbered ed. 115, ed. 157, ed. 148, ed. 183 a, Kt. 9 and Gs. 33, are the main places. The faunal association includes *Erkina miiuta* n. sp., *Erkina* n. sp., *Polydiexodina erki* OKAN, *Reichelina cribroseptata* ERK, *Sunnatrina annae* VOLZ, *Palaeofusulina prisca* DEPRAT, *P. simplex* SHENG and CHANG, *Codonofusiella*, *Pisolina*, *Schubertella*, *Afghanella*, *Cancellina*, *Neoschwagerina*, *Schwagerina*, *Dunbarula*, *Verbeekina* and several other smaller Forams.

Erkina minuta n. sp.
(plate II, figures 4-7)

Derivation of name: It is named *minuta* due to much smaller than genotype.

Holotype: (plate II, figure 4) (115.16.2).

Paratype: (plate II, figure 5-7) (115.11.4 -115.10.2 and 115.4.1).

Type locality: Northeast of Elmadağ village.

Type level: Upper part of middle Permian, *Neoschwagerina* - *Verbeekina* zone.

Diagnosis: The shell is very small and subspheric to fusiform in shape, the poles are rounded. The length of

the shell is 1.22-3.84 mm, the average length being 2.55 mm. Width of the shell is 0.53 to 3.30 mm and average value is 1.85 mm. The form - ratio measured for 4 specimens display a value range of 1.16-2.30 with a mean value of 1.54.

The proloculum is fairly large when compared to the length of the shell. Diameter of this spherical shaped proloculum in 12 specimens changes from 0.11 to 0.64 mm and the average is 0.15 mm. Both of the A and B forms *Erkina minuta* n. sp. can be identified, which shows loose coils with a large intercolar space. The mean radius vector values of 8 specimens for 4 volutions are 0.19, 0.35, 0.61, 0.85 and 1.02 mm respectively.

As in genotype, coarse textured spirotheca consists of tectum and keriotheca. The average thickness of spirotheca measured in 8 specimens for 4 volutions are 0.03, 0.06, 0.08, 0.08, 0.08 and 0.11 mm respectively.

The septa are prominent, and the number of septa counted in 4 specimens are 10, 16, 23 and 12 in the last volution (only one specimen has 4 volutions). The tunnel angle, measured in 4 specimens ranges between 16° - 55° with a mean value of 27°. Axial fillings is fairly obvious. Pertinent quantitative data concerning *Erkina minuta* n. sp. is presented in the tables 4,5 and 6,

Remarks: This new species is distinguished from *E. ankarensis* n. gen. n. sp. with its small test.

Table 4 : Measurements (in millimeters) of *Erkina minuta* n. sp.

Specimen	Pro.	Leng.	Widt.	F.R.	Half Length				
					0	1	2	3	4
115.5.3	0.38	3.52	2.40	1.47	0.21	0.51	1.04	1.76	
115.14.2	0.18	1.22	0.53	2.30	0.13	0.19	0.32	0.61	
115.15.8	0.30	1.60	1.31	1.22	0.19	0.37	0.80		
115.4.2	0.45	3.84	3.30	1.16	0.21	0.43	0.74	1.31	1.92
Maximum :	0.45	3.84	3.30	2.30	0.21	0.51	1.04	1.76	
Minimum :	0.18	1.22	0.53	1.16	0.13	0.19	0.32	0.61	
Average :	0.33	2.55	1.89	1.54	0.19	0.38	0.73	1.23	1.92

Table 5 : Measurements (in millimeter) of *Erkina minuta* n. sp.

Specimen	Thickness of spirotheca					Septal count					Tunnel angle	
	0	1	2	2,5	3	4	1	2	2,5	3		4
115.11.4	0.02	0.01	0.03		0.03	0.03	8	12		15	12	
115.4.1	0.03	0.06	0.10	0.13			14	21	20			
115.10.2	0.03	0.04	0.07		0.08		11	18		32		
115.16.2	0.04	0.06	0.07				9	15				
115.5.3	0.05	0.07	0.10		0.13							18°
115.14.2	0.03	0.03	0.03		0.03							21
115.15.8	0.04	0.11	0.13									55
115.4.2	0.03	0.08	0.12		0.13	0.19						16
Maximum :	0.05	0.11	0.13	—	0.13	0.19	14	21	—	32	—	55°
Minimum :	0.02	0.01	0.03	—	0.03	0.03	8	12	—	15	—	16°
Average :	0.03	0.06	0.08	0.13	0.08	0.11	10	16	20	23	12	27°

Table 6 : Measurements (in millimeter) of *Erkina minuta* n. sp.

Specimen	Pro.	Widt.	0	Radius vector				
				1	2	2,5	3	4
115.11.4	0.11	0.78	0.06	0.13	0.17		0.24	0.39
115.4.1	0.64	2.24	0.29	0.48	0.80	1.12		
115.10.2	0.50	2.43	0.27	0.48	0.83		1.24	
115.16.2	0.34	1.50	0.19	0.35	0.74			
115.5.3	0.38	2.40	0.17	0.35	0.67		1.20	
115.14.2	0.18	0.53	0.10	0.17	0.20		0.27	
115.15.8	0.30	1.31	0.19	0.39	0.66			
115.4.2	0.45	3.30	0.23	0.45	0.77		1.31	1.65
Maximum :	0.64	3.30	0.29	0.48	0.83	—	1.31	1.65
Minimum :	0.11	0.53	0.06	0.13	0.17	—	0.24	0.39
Average :	0.36	1.81	0.19	0.35	0.61	1.12	0.85	1.02

Occurrence : The occurrence of *E. minuta* n. sp. is similar to *E. ankarensis* n. sp. Essentially, they are found in the same association.

***Erkina* n. sp.**
(plate III, figures 1-5)

Diagnosis: Some of the specimens are felt to be different in some respects, particularly with regard to character of

septa. However, the sampling material was not sufficient for thorough investigation. Therefore, it was not possible to include this form within the previous 2 species. The main discriminant character of this form is the porous appearance.

rence of the septa (plate III, figure 1). But the author is not yet sure this character. However, as it can be seen from the measurements, it resembles *E. ankarensis* n. sp.. In the measured specimens the shell - width is 4.00 - 5.02 mm. Since the axial section was not obtained, the length and form • ratio measurements are not given. The proloculum diameter of the measured 2 specimens is 0.35 and 0.48 mm. The radius vector values, as average of 2 specimens, are 0.22, 0.41, 0.81, 1.28, 1.76, 2.11 respectively.

The average spirotheca thicknesses in 5 volutions for 2 specimens are 0.03, 0.07, 0.13, 0.15, 0.16 and 0.15 mm. The average septal count, on the other hand, is found to be 10, 16, 22, 33 and 39.

Erkina n. sp., in general, is similar to the genotype, *E. ankarensis* n. sp.. However, as mentioned above the porous (?) nature of septa is considered to be a differentiating character.

Occurrence : This fusulinid has also been found in the same association of the above mentioned forms.

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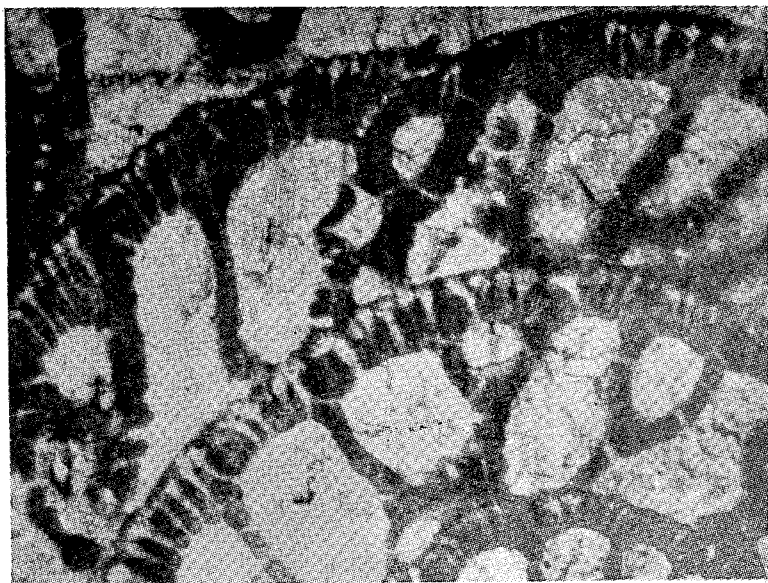
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PLATE I

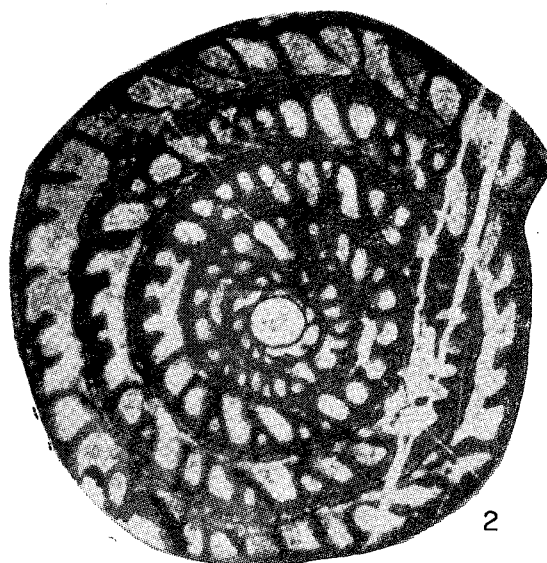
- Figure 1 : The wall structure of *Erkina* n. gen. (115.10.1). X65
Figure 2 : *Erkina ankarensis* n. sp., sagittal section, (115.7.2), X24 (Holotype)
Figure 3 : *Erkina ankarensis* n. sp., axial section, (115.2.3), X 24 (Holotype)
Figure 4 : *Erkina ankarensis* n. sp., sagittal section, (115.15.6), X 24 (Paratype)
Figure 5 : *Erkina ankarensis* n. sp., sagittal section, (115.6.1), X19 (Paratype)
Figure 6 : *Erkina ankarensis* n. sp., sagittal section, (115.13.2), X16 (Paratype)

LEVHA I

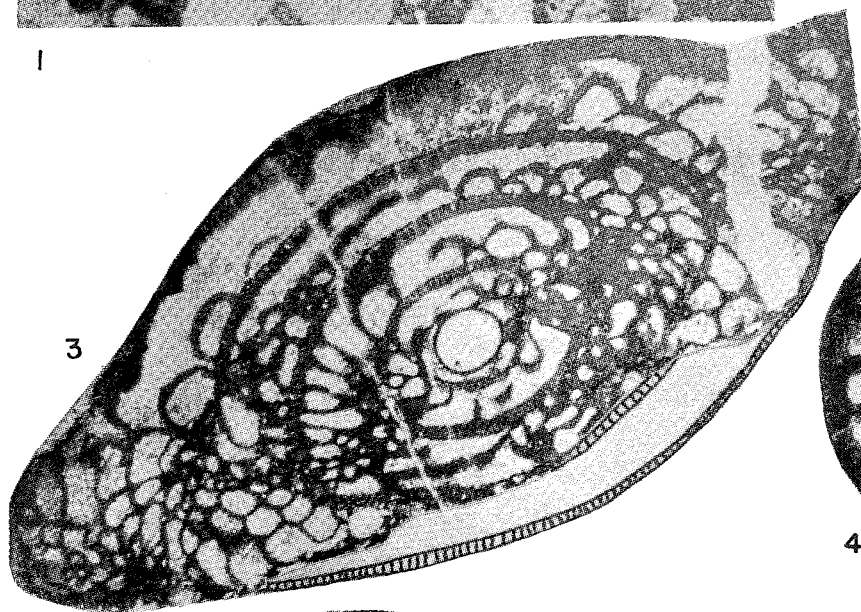
- Şekil 1 : *Erkina* n. gen.'m duvar yapısı, (115.10.1), X85
Şekil 2 : *Erkina ankarensis* n. sp., eksene dik keşi, (115.7.2), X 24 (**Holotip**)
Şekil 3 : *Erkina ankarensis* n. sp., aksenal keşi, (115.2.3), X 24 (Holotip)
Şekil 4 : *Erkina ankarensis* n. sp., eksene dik keşi, (115.15.6), X 24 (Paratip)
Şekil 5 : *Erkina ankarensis* n. sp., eksene dik keşi, (115.6.1), X19 (Paratip)
Şekil 6 : *Erkina ankarensis* n. sp., eksene dik keşi, (115.13. 2), X16 (Paratip)



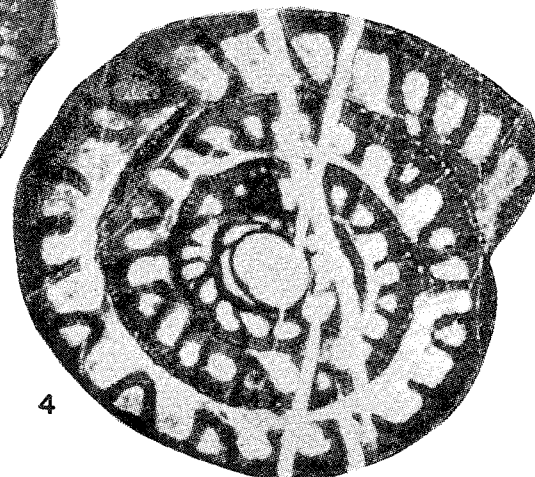
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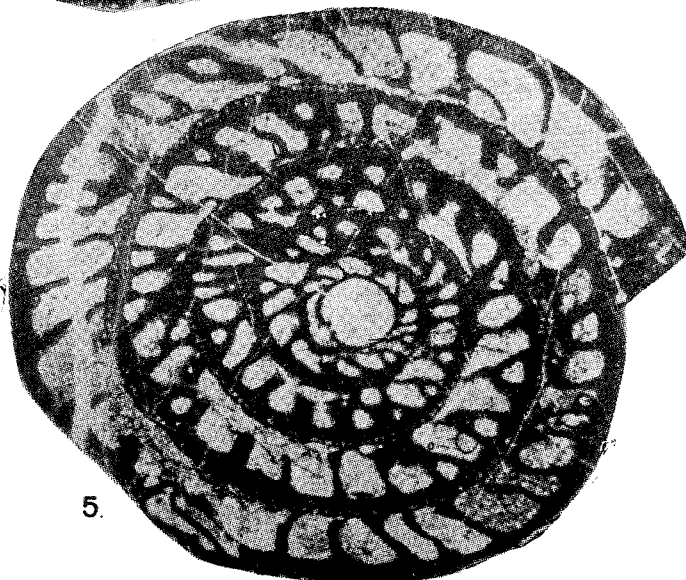
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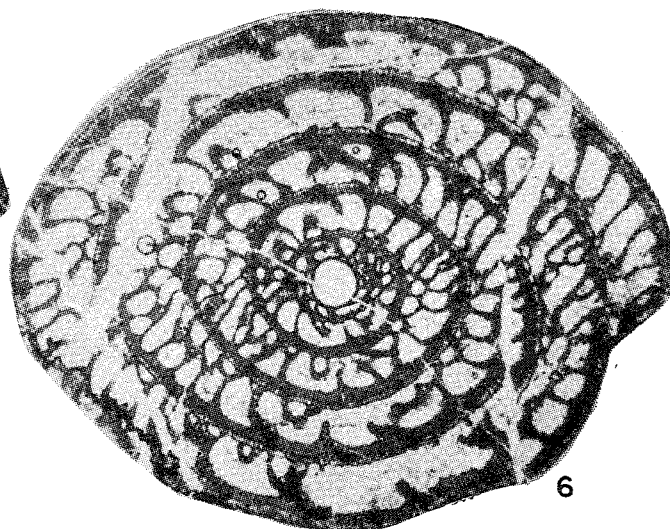
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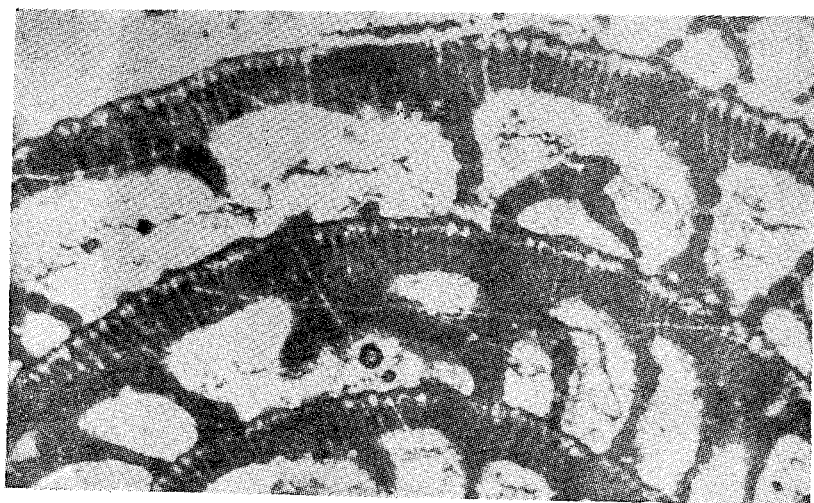
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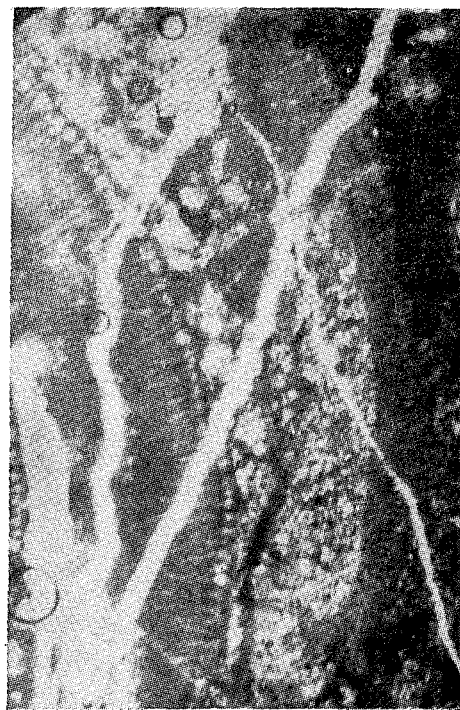
- Şekil 1 : Erkina n. gen.'nın duvar yapısı, (11513.2), X 48
Şekil 2 : Erkina n. gen.'nın duvar yapısı. Son sargı ince yapılıdır. (115161), X50
Şekil 3 : Erkina n. gen.'nın teğetsel kesişinde alveollerin görünümü. (1151.5), X 30
Şekil 4 : Erkina minuta n. sp., eksene dik keşi, (115.16.2), X43 (Holotip)
Şekil 5 : Erkina minuta n. sp., eksene dik keşi, (11511.4), X 48 (Paratip)
Şekil 6 : Erkina minuta n. sp., eksene dik keşi, (11510.2), X 31 (Paratip)
Şekil 7 : Erkina minuta n. sp., eksene dik keşi, (115.4.1), X31 (Paratip)

PLATE II

- Figure I : The wall structure of Erkina n. gen., (11513.2), X48
Figure 2 : The wall structure of Erkina n. gen.,. Note the fine texture of the last volution, (115.161), X 50
Figure 3 : View of the alveoli on the tangential section of Erkina n. gen., (1151.5), X 30
Figure 4 : Erkina minuta n. sp., sagittal section, (115.16.2), X43 (Holotype)
Figure 5 : Erkina minuta n. sp., sagittal section, (11511.4), X 48 (Paratype)
Figure 6 : Erkina minuta n. sp., sagittal section, (115.10.2), X 31 (Paratype)
Figure?: Erkina minuta n. sp., sagittal section, (115.4.1), X 31 (Paratype)



1



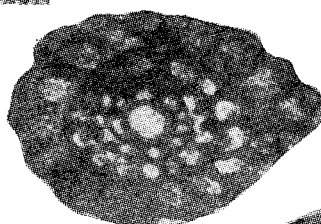
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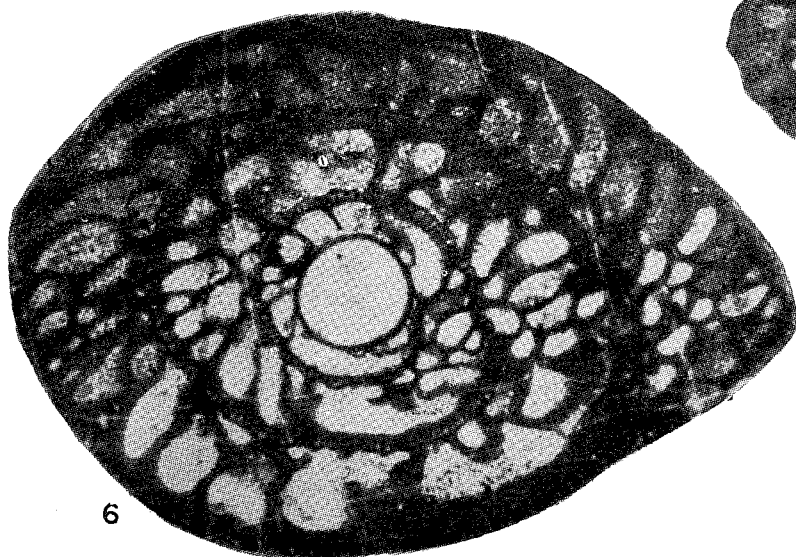
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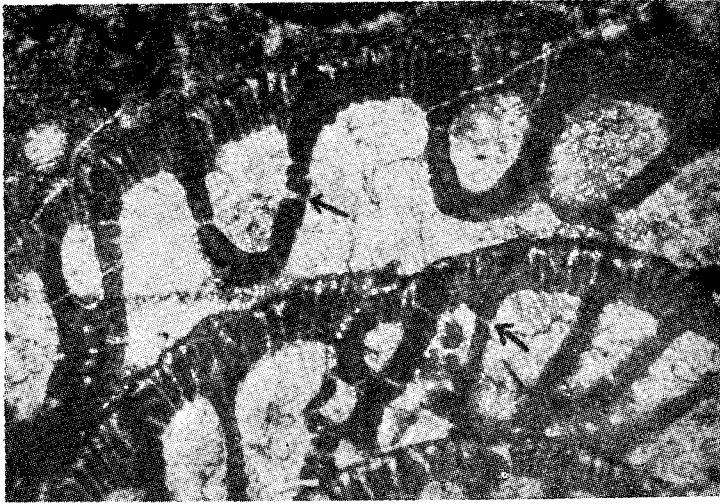
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LEVHA III

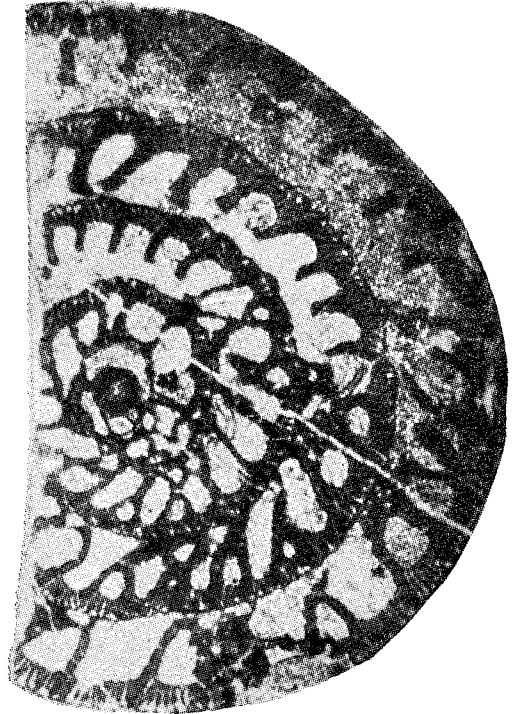
- Şekil 1 : Erkina n. sp/da delikli septalar. (Ok işaretleri delikleri (?) gösterir), (11510.1), X 52
- Şekil 2 : Erkina n. sp., paralel keşi, (115.45), X28
- Şekil 3 : Erkina n, sp., da duvar yapısı, (115183), X53
- Şekil 4 : Erkina n. sp., eksene dik keşi, (11510.1), X22
- Şekil 5 : Erkina n. sp., eksene dik keşi, (11518.3), X14

PLATE III

- Figure 1 : The porous septa of Erkina n. sp., (Arrows indicate the porous septa (?)), (115.101), X 52
- Figure 2 : Erkinna n. sp., parallel section, (115.4.5), X26
- Figure 3 : The wall structure of Erkina n. sp., (115.18.3), X52
- Figure 4 : Erkina n. sp., sagittal section, (115.101), X22
- Figure 5 : Erkina n. sp., sagittal section, (11518.3), X14



1



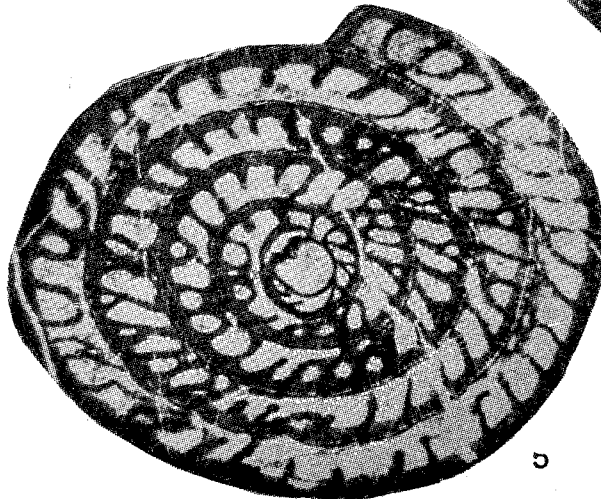
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