REVISION OF THE EARLY CRETACEOUS CORAL GENUS FELIXIGYRA

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Key words: Scleractinian corals, Systematics, Felixigyna, Cretaceous, Italy.

Abstract. The Early Cretaceous coral genus Felixigyna Prever, 1929 is revised on the basis of type material from Italy. Felixigyna has a hydnothoid-meandroid colony organisation with conical monticules attached to each other. The very thick monticules are arranged in a way that calicular centres become apparent. The septa are compact and rhopaloid. The genus can be related to other genera of the Eugyidae family, but differs from them by its particularly developed monticules. It also shows certain resemblance to meandroid genera of the Trochoideaenidae family. Of the six species originally assigned to Felixigyna only five are recognized, since the type of Felixigyna crassa is too poorly preserved to give a diagnosis. The remaining five species have almost no measurable difference in calicular dimensions. In addition to the Italian material, one sample from the Early Cenomanian of Greece and one sample from the Early Albian of Mexico are also assigned to the genus. Material assigned to Felixigyna after Prever (1929) needs to be entirely reclassified to the genus Eohydrophora.


Introduction

Felixigyna, named after the German geologist and palaeontologist Johannes Felix, was introduced by P.L. Prever (1909) in a monograph on the Cretaceous fossils of the Abruzzi near Aquila (Parona 1909). Together with the new genus, Prever established six species (F. crassa, F. deangelisi, F. dolfussi, F. duncani, F. taramellii, F. vaughanii). Thin sections were only used to document part of this material and in other cases Prever only illustrated complete unsectioned specimens. While the images of the complete samples do not provide much information, the drawings based on thin sections are very precise and characterise the material well. A type species was not designated by Prever. When Wells (1936) selected a type species he was probably guided by page precedence rather than the quality of the material because he selected the first species described by Prever. Unfortunately, his selection of F. deangelisi was not the best choice as no thin section was obtained and therefore no good drawing made. Moreover, the small sample is not well preserved.

For a long time the genus went almost unused and its species rarely mentioned. Morocova (1964) was the first author who assigned specimens outside of the type area to Felixigyna. Morocova (1971) established a new species and subspecies within the genus. With the detailed descriptions and illustrations provided by the Polish specialist, Felixigyna became better known among coral taxonomists and was recorded more often from other regions. Other species, formerly assigned to other genera (such as Holcosis and Hydrophora) turned out to belong to this genus. Today, the literature lists 11 species currently assigned to this genus (Löser et
al. 2002). *Felixigrya* is an occasionally occurring genus and was indicated in 27 different regions (Löser 2009; a region in this sense groups age-equivalent localities together that have the same age and that are located in the same basin, in the same continental margin, or on the same interoceanic platform, see Löser & Minor 2007 for details).

**Abbreviations**

The following abbreviations are used:
- BSPG, Bayerische Staatsammlung für Geologie und Paläontologie, München, Germany;
- ERNO, Instituto de Geología, Estación Regional de Noroeste, Universidad Nacional Autónoma de México, Hermosillo, Mexico;
- PU, Università degli studi di Torino, Dipartimento di Scienze della Terra, Torino, Italy;
- TUM, Tohoku University Museum Sendai, Japan.

The following abbreviations for the measurements are used: cre, width of the valleys between the monticules (Fig. 1); monticules in the sense of Wells 1956: F351; crd, distance of the valleys between the monticules (Fig. 1); mt, thickness of the monticules (Fig. 1); sd, density of septa; V max, highest measured value (of all measured values as cre, crd and mt); A, average (of all measured values as cre, crd and mt); S, standard deviation (of all measured values as cre, crd and mt).

The abbreviations used in the synonymy lists follow Matthews (1973):
- †, earliest valid publication of the species name;
- ‡, assignment of this description to the species is doubtful; non, the described material does not belong to the species concerned;
- p, the described material belongs only in part to the species concerned;
- v, the specimen was observed by the author.

**Material**

The material from all below listed localities is not very well preserved. The original aragonite skeletal substance was altered to calcite. This process did not allow the preservation of original microstructure. For the geographic positions of the sample areas see Fig. 2.

**Greece.** Kozani, Nea Nikopolis; Early Cenomanian. The locality was first mentioned by Brunn (1966). It was dated by the presence of *Oribiolina (Coniocribolina) cotharia* and *Ichthyosarcolites* sp. (Steuber & Löser 1997). Sample: BSPG 2003 XX 5818.

**Italy.** The locality "Monti d'Ocre" (south of the village Bagno close to Àquile) encompasses several sample locations which (as far as they could be found) are believed to belong to only one lithostratigraphical unit. The unit was dated in Parona (1909) as Cenomanian. Chessi et al. (1978) assumed an Aptian age, based on oribolinoide

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Fig. 1 - Measurements taken in *Felixigrya* colonies. Skeletal substance in grey.

Fig. 2 - Map of sample areas. 1, Greece; 2, Italy; 3, Mexico.
Foraminifera. On the basis of rudists Massee & Morycowa (1994) placed the localities in the upper part of the Lower Cretaceous (Upper Aptian to [Upper] Albian). According to Chiozzi et al. (1989), a hiatus exists in the whole Monti d’Orci complex in the Upper Albian (? Inflatum/Dispar zone) up to the lower part of the Middle Cenomanian. More recent examinations and comparisons with other faunas (Losi 1998), mainly based on the occurrence of the rudist genus Himeraspis, proposed preliminarily a Lower Aptian age (Camoin 1983; Baron-Szabo & Steuber 1986; Alsharhan 1997; Steuber pers. comm. 1997). Massee et al. (1998) dated material from the Colle Pagliara (Monti d’Orci) on the basis of Himeraspis as Albian. It is not clearly expressed whether this locality correlates with the other sampling localities in the Monti d’Orci complex, but in any case, the idea that Himeraspis represents an Albian age is not followed herein. Massee (2002 pers. comm.) believes that the occurrence of certain radiolitid rudists which first occurred in the Upper Aptian and the absence of typical Early Aptian species (such as Osserella) is important for the dating. Recently, Himeraspis was also found in Upper Aptian sediments of the Arabian peninsula (Shelton, pers. comm. 2002). Steuber (Abu Dhabi, pers. comm. Feb 2010) reported just lately that he found at the locality ?, (Foza Mezza Spada) a rudist specimen of the genus Osserella, which, together with Himeraspis, indicates clearly an Early Aptian age.

The material described here comes from only one point (Foza Cerasetti). The material is rather poor preserved. It was not possible to cut or polish samples, or to obtain thin sections from sample without such. Therefore it was unavoidable to illustrate complete samples or peels of species where no thin sections are available. Samples: PU 18027-18036.

Mexico. Sonora, Municipio Ures, Cerro de Oro, Bubbe Group, Mural Limestone, Cerro la Espina Member, Early Albian. Material from the locality was described by Baron-Szabo & Gonzalez-Leon (2005), but the sample presented here was not mentioned. Sample: ERNO 3162.

Systematic description

Order Scleractinia Bourne, 1900
Suborder Favina Vaughan & Wells, 1943
Family Eugyridae Eguchi, 1951
Felixigya Prever, 1909
Type species: Felixigya deangelius Prever, 1909; subsequently designated by Wells (1936)

Diagnosis: meandroid-hydnochoroid colony. The monticles are conical (Boselli 1979: fig. 4) or elongated and attached to each other by the means of apophyses forming a loose meandroid network. The lines formed by monticles can be branching or form zig-zag lines. The monticles are thick. The polygonal monticles and/or the connected conical monticles are arranged in a way that calcareous centres become apparent. Apart from this, some isolated calices are present. Calcular centres can clearly be distinguished. The calices are compact, thick and often connected in the centre of the calices, directly or by disseminations. Two generations of septa can be distinguished that alternate in thickness and length. Their tips are often swollen. Their lateral faces are dentated. A columella does not exist. The wall is probably septothecal. The endotheca consists of thin tabulate and disseminations.

Comparison. The type material of the type species morphologically does not correspond to material assigned to the genus after the publication of Prever (1909). From this material (see for instance Schollhorn 1998; Tomás et al. 2008) which belongs to Eobydnophora, Felixigya sensu stricto differs by its connected monticles, the formation of calcareous centres and isolated calices, the very thick monticles, and the swollen septal tips. Isolated calices can be found in Felixigya sensu lato (e.g. Massee & Morycowa 1994), but they are very rare. From other Cretaceous genera of the Eugyridae family (Eobydnophora, Euygra, Mynophyllia, Pseudomyophyllia, Hydnochoroida) it differs by the absence of the columella (Myriophyllia, Pseudomyriophyllia), the short monticles (Euygra), the connections between the monticles (Eobydnophora, Hydnochoroida), and the thick monticles (Eobydnophora, Euygra, Myriophyllia, Pseudomyriophyllia). Within the family Eugyridae, only in the genus Pseudomyriophyllia calices can be clearly distinguished.

Apart from its affinities to members of the Eugyridae family, the genus shows affinities to the genera Rhipidomeandrea Morycowa & Masse, 1998, and Wellsmeandra Idakieva & Cheshmedzhieva, 2003. Both genera differ from Felixigya by having more than two septal generations and lonsdaleoid septa. Lonsdaleoid septa are absent not only in the type species of Felixigya s.s., but in all examined samples.

Systematic position. The systematic position is preliminary. Fine structures are not visible in the type of the type species because no thin sections are available from it. The genus seems to be closely related to the genera Eobydnophora, Euygra and Pseudomyriophyllia (? Myriophyllia). These genera have been removed from the Stylinidae and moved into the Faviidae family by Morycowa (1997), based on the revision of a toptotypical sample of Meandrina coteaux d’Orbigny, 1850, type species of Euygra. Because of the poorer ornamentation of the lateral faces of the septa and the meandroid and hydnochorid arrangement of calices, these genera are separated here and assigned to the Eugyridae family. The relationship of the above mentioned Cretaceous genera to the Tertiary and extant genus Hydnochorida is unknown. This genus has been previously placed in the Faviidae family (Boselli 1999), by other authors in the Merulinidae family (Veron et al. 1977, Veron 2000).

Distribution. Felixigya was found only in the type locality in Italy, in Greece and in Mexico. Its range is from Aptian to Early Cenomanian. All material assigned after Prever (1909) does not belong to this genus.

Species. Prever (1909) established six species (F. crassa, F. deangeliis, F. dolfusii, F. duncami, F. taramellii, F. vaughani). From some type specimens thin sections are available, others are provided with a polished surface, other are complete specimens. PU collection rules did not allow the preparation of additional polished sections or thin sections. Therefore, it cannot be decided for all species, whether they belong to Felixigya s.s. or not.

The species are distinguished by the width of the valley, the thickness of the collines, the distance of the
valles and the septal density. To obtain reliable values, the distances where systematically measured on the base of a thin section or peel. The scanned peel or thin section was imported into the computer program PaleoTax/Measure (www.paleotax.de/mesure). Depending on the size of the sample, between 10 and 20 values were obtained for each character. For each character, the minimum and maximum value, as well as the average and the standard deviation was determined. These values are given for the holotype, lectotype or the only available sample in the case of Felixygrya sp.

Herein, with exception for F. crassa, all Felixygrya species established by Prever will be presented with dimensions and description. The taxonomic significance of the obtained values and the consequences for the taxonomy of the genus is discussed below. The synonymy lists include the positively indicated quotations, and (illustrated) material that has been assigned to Felixygrya species but belongs to another genus. The revision of these quotations are beyond of the scope of this study.

Felixygrya crassa Prever, 1909

* F 1909 Felixygrya crassa Prever, p. 122, pl. 12: 5.

Type: Holotype by monotypy is PU 18026.

Remarks. The holotype consists of a colony that is not sectioned and not polished, but eroded (which gives the appearance to be sectionned in the illustration). It is not certain that the species belongs to Felixygrya s.s. and is here mentioned only for the reason of completeness.

Felixygrya deangelis Prever, 1909

Fig. 3, 4, Pl. 1, figs 1-3

* F 1971 Felixygrya paralivis paralivis Morzyckowa, p. 62, text-fig.18, pl. 10: 1-4, pl. 11: 1

Types: There exist two syntypes - PU 18027 (pl. 12: 7, 8) and PU 18028. PU 18028 is, even if not illustrated, designated here as the lectotype because it is larger than PU 18027 and has two polished surfaces. PU 18027 becomes the paralectotype.

Dimensions: (from the lectotype; all values in mm)

<table>
<thead>
<tr>
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<td>mt</td>
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<td>0.83</td>
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<tr>
<td>sd</td>
<td>5 / 2 mm</td>
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Description. Meandroidal - hydrophoroid colony. The monticules are conical and attached to each other forming a loose network. The series formed by monticules are branching and forming zig-zag lines. The monticules have a massive and thick centre. Calicular centres are not easily observable, but calices can be distinguished. The septa are compact and thick. The septa appear clearly in two generations, those of the second generation are much shorter and slightly thinner. Swol-
Fig. 5 - Comparison of calcareous dimensions of the five species that are assigned here to the genus *Felixigya*. Abbreviations of the species: de, *F. deangelisii*; do, *F. dolfusi*; du, *F. duncani*; t, *F. taramellii*; v, *F. vaughanii*; sp, *Felixigya* sp. from Mexico. Dark line length marks the range; full circles mark the average. Grey line length marks the standard deviation.

Remarks. The type is not well preserved and because of the low contrast in skeleton and sediment material, neither good photographs of the polished colony surface, nor well preserved peels were obtained. The species has the smallest dimensions of all species (Fig. 5). A third sample from Greece assigned to this species differs only by the slightly higher density of septa (7 / 2 mm). The material described by Morycowa (1971) shows certain affinities to this species. Most figures in Morycowa (1971) illustrate oblique thin sections, what makes the comparison somehow difficult. The thin sections where recently (October 2009) searched at the collection of the Kraków Jagiellonian University but only the thin section figured on plate 10, figure 1d could be found.


*Felixigya dolfusi* Prever, 1909

Pl. 1, fig. 4

A 1929 *Felixigya Dolfusi* Prever, p. 121, pl. 12: 6, 6a
non v 2006 *Felixigya dolfusi* Prever, 1909 - Léger & Ferry, p. 481, fig. 4.4, 4.5

Type: Holotype by monotypy is PU 18029.

Dimensions: (from the holotype; in mm)

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<td>sd</td>
<td>5 / 2</td>
<td>2 mm</td>
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Description. A large colony with meandroid and meandroid-hydrophorid calicular arrangement. The monticles form a loose meandroid network and long
parallel zig-zag lines giving the colony a meandroid appearance. Calicular centres are more visible where monticules are not arranged in lines. Calicular centres can be distinguished. The septa are compact, thick and probably in two size orders. The endothea is unknown.

Remarks. The large colony is not sectioned, nor does there exist a polished surface. It is therefore not possible to give a more detailed description.

Occurrence. Early Aptian of Monti d'Ocre, Fosso Cersatti (Italy, Abruzzi, L' Aquila).

**Felixigya duncanii** Prever, 1909

Pl. 1, figs 5, 6


non v 1964 Felixigya duncanii Prever, 1909 - Morycowa, p. 52, text-fig. 7, pl. 9: 5, pl. 10: 5

non v 1973 Felixigya duncanii Prever - Tumšeck & Mihašovic, p. 97, pl. 2: 1-3, pl. 3: 1-2

non v 1980 Felixigya duncanii Prever 1909 - Kuzmicheva, p. 95, pl. 35: 2

non 1987 Felixigya duncanii Prever - Sokolov & Ivanovski, pl. M-6: 5

non 1988 Felixigya duncanii Prever, 1909 - Kuzmicheva & Aliiev, p. 158, pl. 2: 2, pl. 9: 2

non v 1989 Felixigya duncanii Prever, 1909 - Morycowa, p. 63, pl. 29: 2, 3

non 2002 Felixigya duncanii Prever, 1909 - Kuzmicheva, p. 169, pl. 25:1

non 2005 Felixigya duncanii Prever, 1909 - Baron-Seabo et al., p. 208, pl. 37: 5

Type. Holotype by monotypy is PU 18030.

Dimensions: (from the holotype; in mm)

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<td>sd</td>
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Description. A large colony with meandroid and meandroid-hydrophoroid calicular arrangement. The monticules form a loose meandroid network and long parallel lines giving the colony a meandroid appearance. Calicular centres are more visible where monticules are not arranged in lines. Calicular centres can be easily distinguished. The septa are compact, relatively long, thick and often connected in the centre of the calices, directly or by disseipments. Two generations of septa can be distinguished that alternate in thickness and length. Septa of the second generation can be very short and only marked by a thorn. The septa of the first cycle are occasionally rhopaloid. The lateral faces of the septa are sparsely dentated. The endothea consists of thin tabulae and disseipments. Disseipments are slightly thinner and vesicular.

Remarks. The septa are longer and thinner than in the type species, which can be also due to a better preservation of the lectotype of *F. taramellii*. The second septal generation is more visible in this material than in other samples of the genus.

Occurrence. Early Aptian of Monti d'Ocre, Fosso Cersatti (Italy, Abruzzi, L' Aquila).
**Felixigya vaughani** Prever, 1909

Fig. 6, Pl. 1, figs. 9-12

* v 1909 Felixigya Vaughanii Prever, text-fig. 24, 25, pl. 11: 10.
non v 2008 Felixigya cf. vaughani Prever, 1909 - Lös, p. 49, pl. 2: 12

Types: Two syntypes (PU 18035, text-fig. 24, 25; 18036, pl. 11: 10) of which PU 18035 was designated as the lectotype (Lös 2008) because there exist two well preserved thin sections. PU 18036 became the paralectotype.

**Dimensions**: (from the lectotype; in mm)

<table>
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<td>mt</td>
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</table>

**Description.** The well preserved colony mainly shows connected conical and polygonal monticles forming a loose meandroid network where the monticles are slightly aligned and form very clear calicular centres. The monticles are very thick, their apophyses are mainly thick. Calicular centres can be distinguished very well. The septa are compact, thick and often connected in the centre of the calices, mainly by dissepiments. Two to rarely three (clearly due to good preservation) generations ("size orders") of septa can be distinguished, which alternate in thickness and length. Septa of the last generation are very short and only marked by a thorn. The septa of the first cycle are often rhopaloid. The lateral faces of the septa are sparsely dentated. There exist many rudimentary septa remaining in the monticle. They reach with the non-rudimentary septa between five to six septa per millimeter. The endotheca consists of thin tabulae and dissepiments. Dissepiments are slightly thinner and vesicular.

**Remarks.** From the lectotype two well preserved thin sections are available showing many details not observable in other thin sections. Here, the formation of calicular centres is more clearly visible than in all other samples. The lectotype of this species exposes the closest relationship to the genera *Rhipidomeandra* and *Wellismeandra*.

**Felixigya sp.**

Fig. 7

**Dimensions**: (in mm)

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<td>mt</td>
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<td>1.459</td>
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<tr>
<td>sd</td>
<td>6-7 / 2mm</td>
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Fig. 6 - Felixigya vaughani Prever, 1909. Drawing after a transverse thin section. PU 18035, lectotype of Felixigya vaughani.
Remarks. This species is represented by only one poorly preserved specimen. The calicular dimensions are larger than in all other samples, but it cannot be decided whether it qualifies the sample to represent a new species or not. More material is needed to decide this question.

Occurrence. Early Albion of Cerro de Oro (Municipio Ures, Sonora, Mexico).

Discussion

Species separation

The comparison of the calicular dimensions (Fig. 5) of the various (type) specimens gives no clear indication for the separation of species. The width of the calicular rows shows the lowest standard deviation making it the best characteristic to separate the species, but the differences between the samples are not significant. Moreover, for samples from which no thin sections were available, correct measurements could not be obtained. Except for *Felixigya deangelisi*, which shows very small dimensions compared to all other species, and *Felixigya sp.* which shows very large dimensions, the dimensions for all remaining samples fall in a range that would normally be considered one species.

Reclassification of *Felixigya s.l.*

Very probably most published material assigned to *Felixigya* after Prever (1909) does not correspond to *Felixigya s.s.* and has to be assigned to *Eohydaphora* Yabe & Eguchi, 1936, which is a hydphoroid coral that forms conical or polygonal monticules, but rarely elongated, straight or bent monticules. A revision of this genus would go beyond the scope of the present paper. Cretaceous species with conical monticules are traditionally assigned to *Hydaphora* or *Hydaphoraracae*. The difference between these two genera is not very clear because the type of *Monticularia styraca* Michelin, 1847, type species of *Hydaphoraracae* is an unqualified neotype and has never been illustrated with the details of its fine structure. The relationship between the Cretaceous and extant hydphorid genera (respectively

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**PLATE 1**

Fig. 1 - *Felixigya deangelisi* Prever, 1909. Peel of a transverse section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18028, lectotype of Felixigya deangelisi. x 6.5.

Fig. 2 - *Felixigya deangelisi* Prever, 1909. Peel of a longitudinal section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18028, lectotype of Felixigya deangelisi. x 6.5.

Fig. 3 - *Felixigya deangelisi* Prever, 1909. Colony surface. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18028, lectotype of Felixigya deangelisi. x 2.6.

Fig. 4 - *Felixigya dollfusi* Prever, 1909. Colony surface. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18029, lectotype of Felixigya dollfusi. x 2.

Fig. 5 - *Felixigya doucanci* Prever, 1909. Transverse thin section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18030, holotype of Felixigya dollfusi. x 3.2.

Fig. 6 - *Felixigya doucanci* Prever, 1909. Longitudinal thin section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18030, holotype of Felixigya dollfusi. x 3.2.

Fig. 7 - *Felixigya taramellisi* Prever, 1909. Transverse thin section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18033, lectotype of Felixigya taramellisi. x 4.5.

Fig. 8 - *Felixigya taramellisi* Prever, 1909. Longitudinal thin section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18033, lectotype of Felixigya taramellisi. x 4.5.

Fig. 9 - *Felixigya vanghanii* Prever, 1909. Transverse thin section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18035, lectotype of Felixigya vanghanii. x 2.7.

Fig. 10 - *Felixigya vanghanii* Prever, 1909. Transverse thin section, detail. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18035, lectotype of Felixigya vanghanii. x 5.2.

Fig. 11 - *Felixigya vanghanii* Prever, 1909. Transverse thin section, detail. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18035, lectotype of Felixigya vanghanii. x 5.2.

Fig. 12 - *Felixigya vanghanii* Prever, 1909. Longitudinal thin section. Early Aiptan of Fosso Cerasetti, Monti d'Ocre, L'Aquila, Italy. PU 18035, lectotype of Felixigya vanghanii. x 4.5.
**Endotheca Columella**

<table>
<thead>
<tr>
<th>Monticules</th>
<th>Barremian-Early Cenomanian</th>
<th>Late Turonian-Maastrichtian</th>
<th>Cenozoic-Extant</th>
</tr>
</thead>
<tbody>
<tr>
<td>tabular, without columella</td>
<td>conical</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>polygonal elongated</td>
<td>Eohydaphora</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vesicular, with or without columella</td>
<td>conical, rarely polygonal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hydnophoraraea** and **Hydnophora** has often been discussed (Felix 1903; Oppenheimer 1930; Tumšek & Buser 1976) without coming to a satisfactory solution. Early Cretaceous (Barremian to Early Cenomanian) hydaphoroid corals of the Eugyridae family show an endothea made of laterally extended tabulae, whereas Late Cretaceous (Late Turonian to Maastrichtian) and Cenozoic members of the family show a vesicular endothea made up by disseminations. Late Cretaceous and Cenozoic hydaphoroid forms share the same type of endothea, but they differ by the columella: Late Cretaceous hydaphoroid corals never expose a lamellar columella as Cenozoic members do (see Bosellini 1999). Whereas Cenozoic hydaphoroid corals of the family are all unified in one genus (**Hydnophora**) independent of whether they have conical, polygonal or elongated monticules, Early Cretaceous forms with conical monticules are traditionally separated from those with polygonal or elongated monticules: the forms with conical monticules are assigned to **Hydaphora**, **Hydnophoraraea** or **Eohydaphora**, whereas the forms with larger monticules were assigned to **Eohydaphora** (as **Felixigya**). From the Turonian on, such a differentiation is not necessary because all forms show conical monticules and (in one and the same colony) only occasionally polygonal ones. Late Cretaceous hydaphoroid forms with elongated monticules do not exist. Fig. 8 illustrates the problem. For the Early Cretaceous forms with conical monticules a name is not available, except **Felixigya** which shows monticules connected by apophyses, a character that is not found in other Early Cretaceous hydaphoroid corals with conical monticules. The question is whether a name is needed for hydaphoroid forms with conical monticules. Probably all hydaphoroid **Eugyridae** with a tabular endothea should be unified under the name **Eohydaphora**, as was originally proposed by Yabe & Euchi (1936) when they erected the genus. This also implies the question of whether a (poorly defined) genus **Hydnophoraraea** is really needed – the Late Cretaceous hydaphoroid forms differs from the Cenozoic ones only by the absence of a lamellar columella.

**Conclusions**

The re-examination of the type of the type species and all other **Felixigya** species shows that all **Felixigya** material assigned after Prever (1909) to this genus, differ significantly from **Felixigya** s.s.; **Felixigya** s.s. is in reality a very rare genus and was only found at three localities world-wide. Species subsequently placed in this genus, and material assigned to species established by Prever need to be reclassified to the genus **Eohydaphora** Yabe & Euchi, 1936.

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