2. FIRST OCCURRENCE OF VANCAMPOPOLLENITES TRIANGULUS KEDVES AND PITTAU 1979 IN HUNGARIAN UPPER CRETACEOUS SEDIMENTS

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Abstract

The form-genus *Vancampopollenites (Eunormapolles)* was first described from Senonian (Santonian-Campanian) sediments of Portugal (Preza). The spore-pollen assemblages of the Senonian layers of the Iberian Peninsule are quite different from those of the Carpathian Basin. In this way the scarce occurrence of this kind "Iberian type" of *Normapolles* in Hungary is interesting. In this paper we present the *V. triangulus* from Hungarian and Portuguese localities together with some selected paleophytogeographically important *Normapolles* types from both localities.

Key words: Palynology, fossil, *Eunormapolles,* Senonian, Hungary and Portugal.

Introduction

The spore-pollen assemblages of the Upper Cretaceous layers of Hungary were first investigated by GÓCZÁN (1961, 1964a,b). Rich *Normapolles* data were published in the monograph of GÓCZÁN, GROOT, KRUTZSCH and PACLTOVÁ (1967). Further papers by: GÓCZÁN et al. (1986), GÓCZÁN and SIEGL-FARKAS (1989, 1990), KEDVES (1983, 1984), KEDVES and DINIZ (1983), SIEGL-FARKAS (1983, 1984, 1985, 1986, 1988, 1993a,b). The first palynological paper from the Upper Cretaceous layers of Portugal (Aveiro) was published by KEDVES and DINIZ (1967), DINIZ, KEDVES and SIMONCSICS (1974), KEDVES and DINIZ (1979a,b, 1980–81, 1983), KEDVES and HEGEDÜS (1975), PÁRDUTZ, JUHÁSZ, DINIZ and KEDVES (1974), etc. Paleophytogeographically, on palynological basis the following sub-regions were distinguished by KEDVES and DINIZ (1983) within the Mesogean (=Mediterranean) region: 1. Iberolusitanian, 2. Pyrenean, 3. Carpathian (Cf. KEDVES, 1985).

The form-genus *Vancampopollenites* was described by KEDVES and PITTAU (1979) from Preza (Portugal) with the following species: *V. lusitanus, V. triangulus, V. subporatus, V. endotriangulus, V. aradaensis, V. minor.*

Materials and Methods

During the last years, a large research program was completed on the Hungarian Senonian spore–pollen assemblages in the Hungarian Geological Institute of Budapest. The results of the new investigations enlarged our previous knowledge, and interesting pollen grains were also observed in very small quantities. It seems that in this case this occurrence of *Vancampopollenites triangulus* in Hungary is particularly interesting in this respect. The Hungarian locality is the following: Bakony Mts, Borehole Bj-528, depth 76.5–76.6 m., marine sedimented Jákó Marl Formation, Latest Santonian, *Hungaropollis* Dominance-Zone, *H. oculus – H. oculoglomeratus* subzone. From Portugal, the spore-pollen material of the locality type of *Vancampopollenites* fgen. was used for comparison; Preza-III-2. The LM pictures were taken in the Cell Biological and Evolutionary Micropaleontological Laboratory of the Department of Botany of the J. A. University, Szeged on a JENAVAL (Carl Zeiss, Jena) instrument with oil immersion objective GF–Planachromat HI 100x/1, 2500/0,17–A, except for the pictures on Plate 2.2. designated with asterix. In these cases mentioned later the negatives taken with an NFPK light-microscope were used.

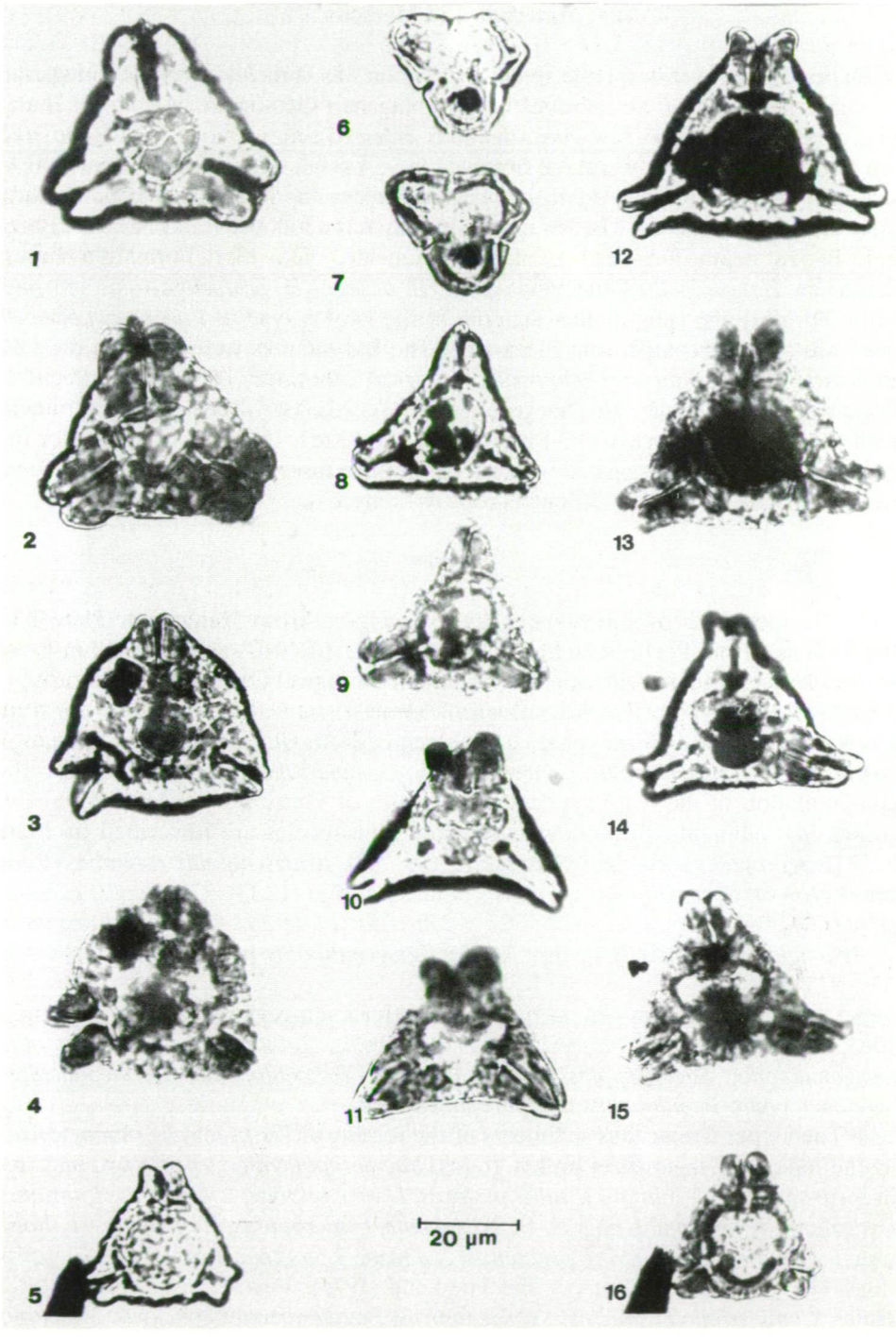
Results

1. The specimens of *Vancampopollenites triangulus* from Hungarian (Plate 2.1., figs. 6,7) and from Portuguese localities (Plate 2.2., figs. 6,7) are identical in every respect based on their light–microscopical morphological characteristic features.

2. As the most important palynological characteristic features for the Hungarian locality, the following form-genera can be emphasized: *Hungaropollis* – dominant–, *Suemegipollis, Krutzschipollis, Longanulipollis, Complexiopollis, Schulzipollis.* To the contemplation of the *Normapolles* pollen grains of *Vancampopollenites triangulus* containing sediments, the following selected form-species are illustrated on Plate 2.1.: *Hungaropollis rectilineus* (Plate 2.1., figs. 1,2), *Krutzschipollis rotundus* (Plate 2.1., figs. 3,4), *Krutzschipollis* cf. *crassis* (Plate 2.1., figs. 12,13), *Cuneipollis cuneolis* (Plate 2.1., figs. 5,16), *Longanulipollis polanyensis (Plate 2.1., figs. 8,9), Longanulipollis longianulus* (Plate 2.1., figs. 14,15), *Longanulipollis monstruosis* (Plate 2.1., figs. 10,11).

3. Characteristic form-genera in the Carpathian sub-region (Kedves and Diniz, 1983, Kedves, 1985): *Complexiopollis, Oculopollis, Laudaypollis, Hungaropollis, Longanulipollis, Suemegipollis, Krutzschipollis, Verruoculopollis, Portaepollenites, Semioculopollis, Papillopollis, Interporopollenites.*

4. The Upper Cretaceous sediments of the locality of Preza may be characterized by the following *Angiosperm* pollen grains: *Interporopollenites* – dominant and rich in form-species – *I. initium, I. subgranulosus, I. vancampoae, I. proporus, I. ornatus, I. rugulatus, I. weylandi, I. nagyae, I. zaklinskaiae, I. microporus, I. triangulus, I. thomsoni, I. concavus, I. stanleyi, I. prezaensis, I. dinizae, I. goczani.* For detailed descriptions, see the paper of Kedves and Hegedüs (1975). Further *angiosperm* pollen grains: *Complexiopollis prezensis, C. lusitanicus, Prezaipollenites concavus, Magnoporopollis prezensis, Boltenhagenipollenites magnoporatus, Vacuopollis orthopyramis*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parva, V. venustus, V. proconcavus magna, V. microconcavus, V. stanleyi, V. prezensis, Triangulipollis turonicus, T. triangulus, T. parvus, T. magnus, Trevisanaepollenites triangulus, Prenudopollis endocirculus, P. prezensis, Mediterraneipollenites lusitanicus, Plicapollis silicatus, Stanleypollenites prezensis, Tschudyipollenites magnus, Proteacidites fsp. Detailed data can be seen in the paper of KEDVES and DINIZ (1980–81). Data of the form-genus *Vancampopollenites* were mentioned previously. On Plate 2.2. the following form-species are represented: *Interporopollenites prezaensis* (Plate 2.2., figs. 1–4), *Vancampopollenites subporatus* (Plate 2.2., figs. 5,17), *V. triangulus* (Plate 2.2., figs. 6,7), *V. lusitanus* (Plate 2.2., figs. 8–12), *Triangulipollis turonicus* (Plate 2.2., figs. 13,14), *Prenudopollis prezensis* (Plate 2.2., figs. 15,16).

5. Abundant form-genera in the Ibero-lusitanian sub-region; (KEDVES and DINIZ, 1983, KEDVES, 1985): *Interporopollenites, Vacuopollis, Papillopollis.* By their presence, important form-genera: *Vancampopollenites, Triangulipollis, Trevisanaepollenites, Prenudopollis, Mediterraneipollenites, Boltenhagenipollenites, Magnoporopollis, Aveiropollenites.*

Discussion and Conclusions

These new data to the Upper Cretaceous early *angiosperm* "pollen flora" of Hungary are new contributions to the richness in taxa and the pecularities of the Carpathian Basin. Here the first European occurrence of the *Endoinfundibulapollis distinctus* TSCHUDY 1975 in the Senonian layers of Csávoly (Hungary) is worth mentioning (cf. KEDVES, 1983, 1984). Previously, this pollen form-genus was believed to be a *Normapolles*, which is characteristic genus of the North American *Normapolles* territories (sub-province: Atlantic Coast of North America, region: North Atlantic Coastal Plain).

◄ Plate 2.1.

1,2. *Hungaropollis rectilineus* GÓCZÁN and SIEGL-FARKAS 1989, slide: 95698, Bj-528, cross-table number: 9.8/142.2.

3,4. *Krutzschipollis rotundus* GÓCZÁN and SIEGL-FARKAS 1989, slide: 95698, Bj-528, cross-table number: 23.5/151.8.

5,16. *Cuneipollis cuneolis* GÓCZÁN and SIEGL-FARKAS 1989, slide: 95698, Bj-528, cross-table number: 10.2/146.3.

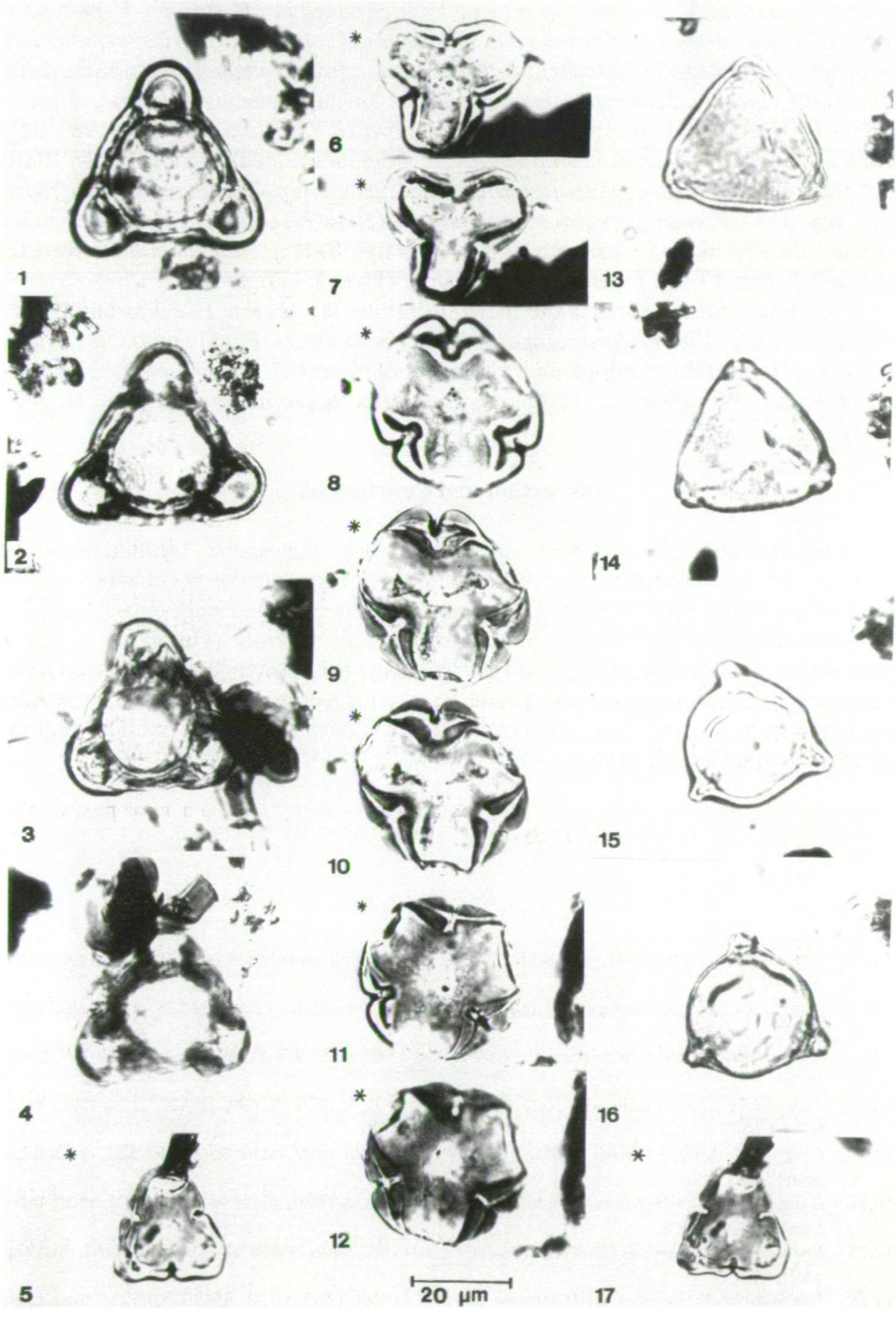
6,7. *Vancampopollenites triangulus* KEDVES and PITTAU 1979, slide: 95698, Bj-528, cross-table number:10.7/142.6.

8,9. *Longanulipollis polanyensis* GÓCZÁN and SIEGL-FARKAS 1989, slide: 95698, Bj-528, cross-table number: 8.1/136.6.

10,11. *Longanulipollis monstruosis* GÓCZÁN and SIEGL-FARKAS 1989, slide: 95698, Bj-528, cross-table number: 13.7/146.7.

12,13. *Krutzschipollis* cf. *crassis* (GÓCZÁN 1964) GÓCZÁN 1967, slide: 95698, Bj-528, cross-table number: 14.2/144.7.

14,15. *Longanulipollis longianulus* (GÓCZÁN 1964) GÓCZÁN 1967, slide: 95698, Bj-528, cross-table number: 10.2/146.3.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◄ Plate 2.2.

1,2. *Interporopollenites prezaensis* KEDVES and HEGEDÜS 1975, slide: Preza-III-2, cross-table number: 19.2/135.1.

3,4. *Interporopollenites prezaensis* KEDVES and HEGEDÜS 1975, slide: Preza-III-2, cross-table number: 16.2/136.6.

5,17. *Vancampopollenites subporatus* KEDVES and PITTAU 1979, slide: Preza-III-2, cross-table number: 15.0/114.3.

6,7. *Vancampopollenites triangulus* KEDVES and PITTAU 1979, slide: Preza-III-2, *cross-table number: 8.1/116.7.

8–10. *Vancampopollenites lusitanus* KEDVES and PITTAU 1979, slide: Preza-III-2, *cross-table number: 21.2/114.8.

11,12. *Vancampopollenites lusitanus* KEDVES and PITTAU 1979, slide: Preza-III-2, *cross-table number: 12.6/112.8.

13,14. *Triangulipollis turonicus* KRUTZSCH 1967, slide: Preza-III-2, cross-table number: 12.8/136.5.

15,16. *Prenudopollis prezensis* KEDVES and DINIZ 1980–81, slide: Preza-III-2, cross-table number: 7.9/144.4.

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