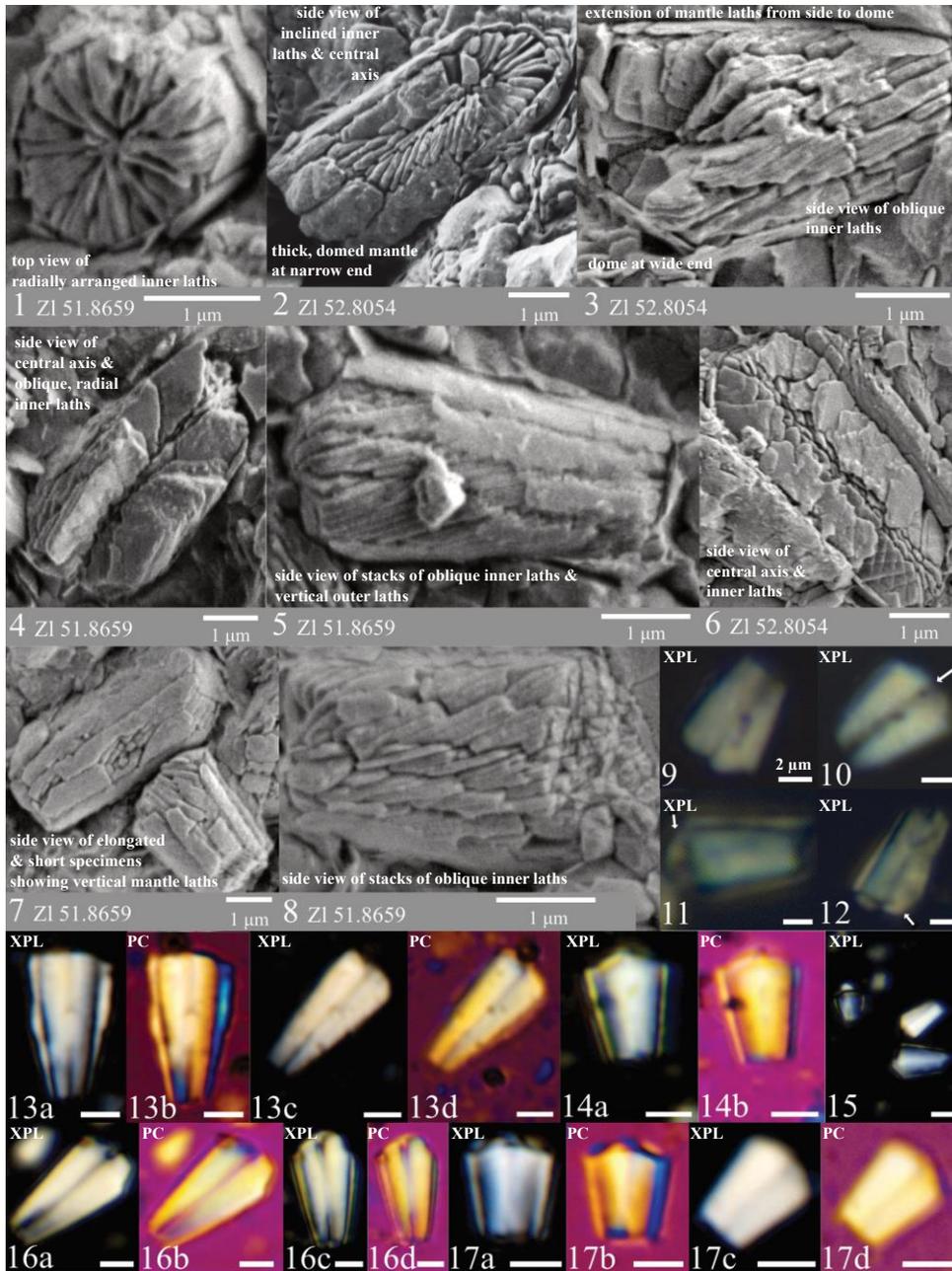


15. *Eoconusphaera zlabachensis* (Moshkovitz, 1982) Bown & Cooper (1989) emend.

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Plate 2

Eoconusphaera zlabachensis SEM & LM images. 1–12: Zlabach, Austria; 13–17: Australia



9–12: side views of four specimens with a dome shape at the wide end, mantle visible as pale lateral bars, central axis dark, sample ZI 51. 8659. 13: side view of specimen with different rotation patterns, sample 1499. 14: side view, sample 3143. 15: side view of three specimens, sample 3150. 16: side view of specimen with different rotation patterns, sample 3146. 17: side view of specimen with different rotation patterns, sample 1501

Pl. 2, figs 1–17

1982 *Conusphaera zlabachensis* Moshkovitz: pp. 612–613, pl. 1, figs 1–10 (holotype = figs 1–3).

1983 *Eoconusphaera tollmanniae* Jafar: pp. 228–229, figs 1–3, 6.

1987 *Conusphaera zlabachensis* Moshkovitz, 1982 –Janofske: p. 49, pl. 2, figs 6–8.

- 1987 *Conusphaera tollmanniae* (Jafar, 1982) Janofske: p. 49, pl. 2, figs 1–5.
- 1987 *Conusphaera zlambachensis* Moshkovitz, 1982 –Bown: p. 72, pl. 11, figs 1–3; pl. 15, figs 13, 14.
- 1987 *Conusphaera zlambachensis* Moshkovitz, 1982 –Posch & Stradner: p. 232, text-fig. 6, pl. 1, figs 1–7.
- 1988 *Eoconusphaera zlambachensis* (Moshkovitz, 1982) Kristan-Tollmann: p. 77.
- 1989 *Eoconusphaera zlambachensis* (Moshkovitz, 1982) Kristan-Tollmann, 1988 – Bown & Cooper: p. 104, pl. 5.1, figs 1–8.
- 1995 *Eoconusphaera zlambachensis* (Moshkovitz, 1982) Kristan-Tollmann, 1988 – Kristan-Tollmann: pp. 2–4, pl. 1, figs 1–6.
- 2010 *Eoconusphaera zlambachensis* (Moshkovitz, 1982) Kristan-Tollmann, 1988 – Clémence et al.: fig. 11c, k. 2016 *Eoconusphaera zlambachensis* (Moshkovitz, 1982) Kristan-Tollmann, 1988 – Bottini et al.: figs 5–8.

Derivation of name: After the Zlambach Marl (now renamed the Zlambach Formation), where the first specimens were found.

Original diagnosis: “Elongated cone, truncated at both ends, composed of some 35–40 calcitic lamellae, closely packed and radiating from the center of the cone. When viewed from the narrower base, the lamellae are seen to be inclined and arranged in a sinistrally turning spindle (Pl. 1, Fig. 3, 4, 6 [in Moshkovitz, 1982; herein, Pl. 2, figs 2, 3, 5, 8]). The outer surface of the cone is covered by elongated, smooth plates, each one separated from the other [herein, Pl.2, figs 2, 5, 7]. In LM, the form is too small to reveal the fine details of the lamellae and only the general conical shape and the cover plates, which in many specimens [sic.] have fallen out (Pl. 1, Fig. 4, 5 [in Moshkovitz, 1982]) could be discerned (Pl. 1, Fig. 7, 8 [in Moshkovitz, 1982]).”

Emended description: In addition to the presence of a core comprising approximately eight radially arranged bundles (Posch & Stradner, 1987), our observations highlighted additional characteristics, including the inclination of the calcite laths (between 150 and 159°; Pl. 2, figs 2, 5, 8). Similarly to *Eoconusphaera hallstattensis*, specimens have been observed with a domed shape at the widest extremity, formed by an extension of the inner laths (Pl. 2, figs 3, 5, 11, 14, 16), which can be enclosed by the outer mantle of elements, if these are preserved (Pl. 2, figs 3, 11, 12, 14). Less frequently, and only observed in the SEM, *E. zlambachensis* can also present a domed structure on the narrow extremity, formed by the outer mantle laths joining at the end, more or less enclosing the extremity, depending on preservation (Pl. 2, fig. 2). Under the LM, *E. zlambachensis* has a more trapezoid shape than *E. hallstattensis*. Because the laths of the inner core in *E. zlambachensis* are very thin (<0.5 µm thick), they cannot be

distinguished from each other optically. Hence, the inner core appears as a homogenous, birefringent block at all angles to the polariser. A thin, dark line, reflecting the central axis, from which the laths of the inner core radiate, is visible in some orientations.

Differentiation: *Eoconusphaera zlambachensis* differs from *E. hallstattensis* in the inclination of the laths in the inner core, its appearance in the LM (see description above), its more circular extremities and its dominance in the *V. stuerzenbaumi* and *Choristoceras marshi* ammonoid zones (*M. rhaetica* and *M. ultima* conodont zones).

Dimensions of observed specimens: The length of our specimens varied between 2.2 and 4.8 μm , with the width of the wide end varying between 1.4 and 3 μm , and the width of the narrow end varying from 1 to 2.5 μm .

Holotype dimensions: Length = 8 μm ; width of wide end = 5 μm ; width of narrow end = 3.5 μm (Moshkovitz, 1982).

Geographical occurrence: According to Moshkovitz (1982), *E. zlambachensis* was common in the Zlambach Formation (open-oceanic Hallstatt Basin) in the Fischerwiese and Roßmoosgraben sections and less frequent in the Kössen Formation (intraplatform Eiberg Basin) in the Kendelbachgraben section. According to Jafar (1983), it was only frequent (not common) in the Fischerwiese section (Zlambach Formation) and rare in the Ampelsbach section (Kössen Formation). Bown & Cooper (1989) reported a high abundance (i.e. 10–20 specimens per field of view at 1000x magnification, equivalent to 50% of the assemblage) in the Weißloferbach section (Kössen Formation). According to Kristan-Tollmann (1995), the species was as common as *Prinsiosphaera triassica* in the Grünbachgraben section (Zlambach Formation). Clémence et al. (2010) reported its high relative abundance in the Eiberg section (i.e. 20–40% of the assemblages), but less abundant in Tiefengraben (i.e. 10–15%) (both in the Kössen Formation). All these localities are in the NCA, Austria. Bralower et al. (1991) recorded this species as being common in the Upper Triassic of the Wombat Plateau, offshore Western Australia. It was very common (up to 100–150 specimens per field of view at 1000x magnification) in the Brigadier Formation in the NCB, offshore Western Australia (RH, unpublished data, 2018).

Stratigraphical occurrence: Upper Triassic, Rhaetian (lower *V. stuerzenbaumi*–*C. marshi* ammonoid zones, *M. posthernsteini*–*M. hernsteini* to *M. ultima* conodont zones).

Remarks: The specimens called *E. zlambachensis* by Bralower et al. (1991) do not closely resemble the holotype of this species. The inner core of their specimens, figured in LM photomicrographs (Bralower et al., 1991, pl. IX, figs 7–11), do not have the typical continuous birefringence pattern of *E. zlambachensis*, so they are considered here to belong to *E. hallstattensis*. The specimens illustrated by Bottini et al. (2016, pl. 1, figs 5–

8) are poorly preserved, but in the LM, they show continuous laths in the core, suggesting they are closer to *E. zlambackensis* than *E. hallstattensis*, which has discontinuous laths in the core.

Demangel, I., Howe, R., Gardin, S. & Richoz, S., 2021. *Eoconusphaera hallstattensis* sp. nov. and a review of the Rhaetian genus *Eoconusphaera*. *Journal of Nannoplankton Research*, **39(1)**: 77–87.