

***Amblysiphonella adnetensis* nov. sp. (“Sphinctozoa“, Porifera)
from the Upper Triassic reef complex near Adnet
(Salzburg, Austria)**

By

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with 1 Figure and 1 Plate

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Abstract

Amblysiphonella adnetensis nov. sp. is described from the Upper Triassic (Rhaetian) reef limestones exposed near the town of Adnet, Salzburg, Austria.

A. adnetensis is one of the largest known species of the genus occurring in the Upper Triassic reefs limestones (“Dachstein-Reefs”) in Northern Calcareous Alps.

Zusammenfassung

Aus den obertriassischen (Rhät) Riffkalken in der Nähe der Ortschaft Adnet, Salzburg, Österreich wird die Art *Amblysiphonella adnetensis* nov. sp. beschrieben.

A. adnetensis ist eine der größten *Amblysiphonella*-Arten, welche in den obertriassischen Riffkalken („Dachstein-Riffen“) in den Nördlichen Kalkalpen vorkommt.

1. Geographic position of the Adnet reef

The Upper Rhaetian coral-sponge reef near the town of Adnet (SE of Salzburg, Austria) is the most famous Upper Triassic reef complex in Northern Calcareous Alps. Sedimentological and paleontological investigations of this reef complex were carried out by SCHÄFER (1979), SCHÄFER & SENOWBARI-DARYAN (1981), and BERNECKER et al. (1999). Sponges from Adnet reef complex were described by SCHÄFER (1979), SENOWBARI-DARYAN & SCHÄFER (1979), and SENOWBARI-DARYAN (1990).

Amblysiphonella adnetensis nov. sp., described in this paper, was found in the famous quarry of “Tropf-Bruch“. *Amblysiphonella* is a rare sponge genus in the Norian-Rhaetian Dachstein reefs and in Upper Rhaetian reefs, such as the Adnet reef in the Northern Calcareous Alps (SENOWBARI-DARYAN 2009). The genus was not known from the Adnet reef complex.

The investigated material including three rock pieces will be deposited in “Bayerische Staatssammlung für Paläontologie und Historische Geologie“ in Munich (“Inventory-Nr.: BSPG 2009I 74-76“).

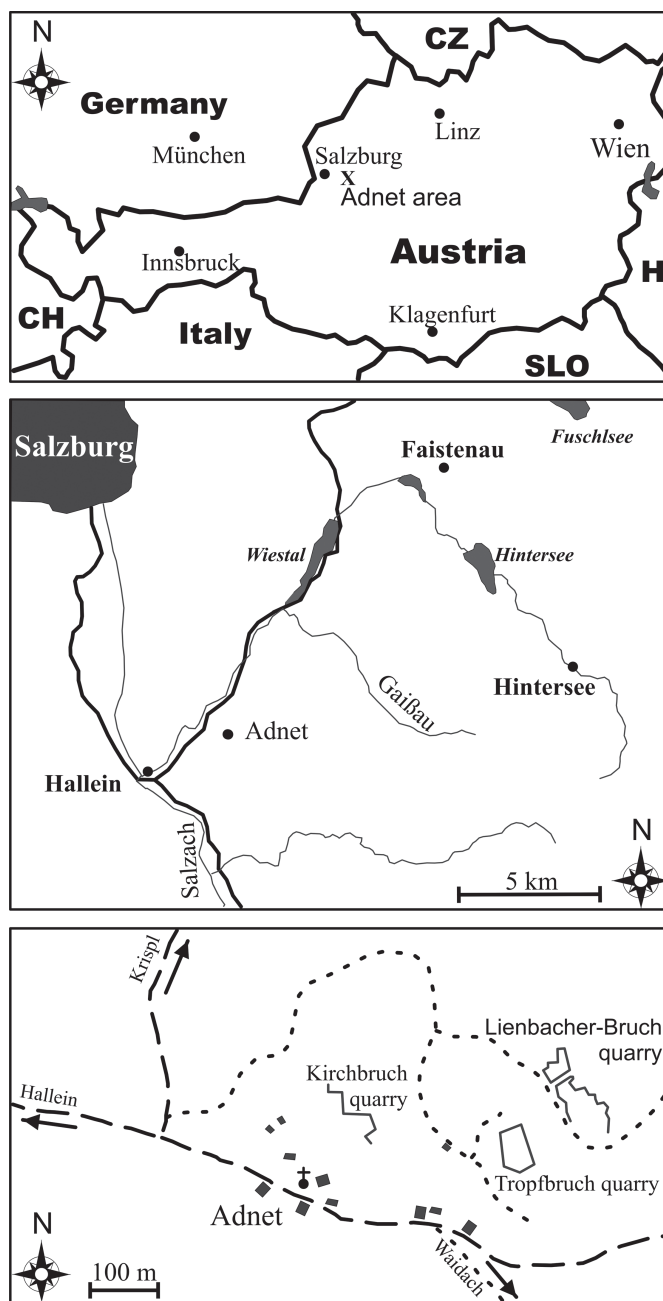


Fig. 1: Geographic position of the Adnet reef complex near the town of Adnet (modified from BERNECKER et al. 1999).

2. Paleontology

Class Demospongia SOLLAS, 1875
 Subclass Ceractinomorpha LEVI, 1973
 Order Ageladia VERRILL, 1907
 Suborder Porata SEILACHER, 1962
 Family Sebergasiidae DE LAUBENFELS, 1955
 Subfamily Sebergasiinae SENOWBARI-DARYAN, 1990
 Genus *Amblysiphonella* STEINMANN, 1882

Type species: *Amblysiphonella barroisi* STEINMANN, 1882.

Further species: See SENOWBARI-DARYAN (1990), SENOWBARI-DARYAN & GARCIA-BELLIDO (2002).

Amblysiphonella adnetensis nov. sp.
 (Plate 1, figs. A-C)

Derivatio nominis: Named after the occurrence of the species near the town of Austria.

Holotype: Specimen marked with H and is illustrated in Pl. 1, Fig. A (the specimen is cut in oblique section and the half of it is illustrated in Fig. B/H).

Paratype: Specimen marked with P and is illustrated in Pl. 1, Fig. A/P and B/P.

Locus typicus: From the "Tropfbruch" (Tropfbruch quarry) of Upper Rhaetian reef limestone near the town of Adnet, Salzburg, Austria.

Stratum typicum: Upper Triassic (Upper Rhaetian).

Diagnosis: Large and branched(?) *Amblysiphonella* with crescent-shaped chambers. Outer segmentation or annulation lacking. Chamber walls thin and equally perforated. Chamber interior without vesiculae.

Material: Three specimens, which are grown together.

Description. Three specimens (recognizable in Pl. 1, Fig. C) of this sponge are grown together. The holotype, illustrated in Pl. 1, Fig. A/H, and B/H reaches a diameter of 58 mm and a length of at least 110 mm. It is composed of numerous crescent-shaped chambers reaching a height of 5-8 mm (measured around the spongocoel). The chamber height decreases continuously to the periphery of the sponge. The chambered construction of the sponge is not recognizable from the outside of the sponge. An outer annulation is lacking. Some older chambers are overlapped by the younger chambers. A retrosiphonate spongocoel having a diameter of about 20 mm (almost 1/3 of the whole diameter of the sponge) passes through the sponge. The chamber walls and the wall of the spongocoel are about 1 mm thick. They are pierced by equally distributed pores of about 1 mm in diameter. Chamber interiors are without any filling skeleton and vesiculae.

Size and morphological characteristics of one paratype (Pl. 1, Fig. A/P, B/P) correspond with that of the holotype, only the spongocoel is moderately smaller in diameter (15 mm) compared to the holotype (20 mm). It can not be judged from the oblique section whether the paratype specimens bud from the holotype or have used it as a substrate to grow on.

Comparison. Up to 1990 more than 50 species of the genus *Amblysiphonella* were described. Those are listed with their biometrical data by SENOWBARI-DARYAN & DI STEFANO (1988)

and SENOWBARI-DARYAN (1990). Additionally, species describe later than 1990 are listed in SENOWBARI-DARYAN & GARCIA-BELLIDO (2002) and SENOWBARI-DARYAN (2005). The majority of species was described from the Permian, and only 16 species are known from the Triassic (see SENOWBARI-DARYAN 2005).

According to the sponge diameter, *A. adnetensis* n. sp. is one of the largest known species of the genus *Amblysiphonella*. All Triassic species are smaller than *A. adnetensis*, only *A. maxima* SENOWBARI-DARYAN & DI STEFANO with a sponge diameter of 70 mm, described from the Norian of Sicily by SENOWBARI-DARYAN & DI STEFANO (1988) and *Amblysiphonella* sp. 1 with a sponge diameter of 43 mm, described by SENOWBARI-DARYAN (1980) from the Upper Rhaetian Gruber reef near Hintersee, Salzburg are comparable with *A. adnetensis*. *A. adnetensis* differs from *A. maxima* not only by the smaller diameter of the latter, but also by species of crescent-shaped chambers (quadrangular in *A. maxima*) and by the lack of chambered construction recognisable on the outside of the sponge. The funnel-shaped pores with a fine-perforated dermal layer and the occurrence of vesiculae within the chamber interiors are additionally features of *A. maxima* to distinguish this species from *A. adnetensis*. *A. adnetensis* differs from *Amblysiphonella* sp. 1 SENOWBARI-DARYAN (1980) by lacking of an outer segmentation and by the crescent-shaped chambers. *A. sp. 1* possesses a wider spongocoel than found in *A. adnetensis*.

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References

- BERNECKER, M., WEIDLICH, O. & FLÜGEL, E. (1999): Response of Triassic coral reef communities to sea-level fluctuations, storms and sedimentation: Evidence from a spectacular outcrop (Adnet, Austria). - *Facies*, **40**: 229-278, Erlangen.
- LAUBENFELS, M.W., DE (1955): Porifera. - (In MOORE, R.C. (ed.): Treatise on Invertebrate Palaeontology, Part E, Archaeocyatha and Porifera), 21-112. Geol. Soc. of America and Univ. of Kansas Press, New York & Lawrence.
- LEVI, C. (1957): Sur une nouvelle classification des Démosponges. - *Acad. Sci. Paris, Comptes Rendus des séances* 236: 853-855, Paris.
- SCHÄFER, P. (1979): Fazielle Entwicklung und Palökologische Zonierung zweier obertriadischer Riffstrukturen in den Nördlichen Kalkalpen („Oberrhät“-Riff-Kalke, Salzburg). - *Facies*, **1**: 3-245, Erlangen.
- SEILACHER, A. (1962): Die Sphinctozoa, eine Gruppe fossiler Kalkschwämme. - *Anzeiger Österreichische Akademie der Wissenschaften, math.-naturwiss. Kl.* **1961** (10): 720-790, Wien.
- SENOWBARI-DARYAN, B. (1980): Fazielle und paläontologische

- Untersuchungen in obererhätischen Riffen (Feichtenstein- und Gruberriff bei Hintersee, Salzburg, Nördliche Kalkalpen). - *Facies*, **3**: 1-237, Erlangen.
- SENOWBARI-DARYAN, B. (2009): Coralline Schwämme aus dem norisch-rhätischen Dachstein-Riff des Gosaukamms (Nördliche Kalkalpen, Österreich). - *Jb. Geol. B.-A.*, **149**(1): 111-166, Wien.
- SENOWBARI-DARYAN, B. & DI STEFANO, P. (1988): *Amblysiphonella maxima* n. sp., a new sphinctozoan sponge from Upper Triassic reefs in Sicily. - *Bull. Soc. Paleont. Ital.*, **27**(1): 17-21, Modena.
- SENOWBARI-DARYAN, B. & GARCIA-BELLIDO, D. C. (2002): „Sphinctozoa“: Chambered Sponges (Polyphyletic). - (In: HOOPER J.N.A. & VAN SOEST R.W.M. (eds): *System Porifera. A Guide to the Classification of Sponges*), 1511-1533, (Kluwer Academic/Plenum Publishers) New York Boston London Moscow.
- SOLLAS, W.J. (1875): Sponges. - In: *Encyclopedia Britannica*. p. 451, 9th edition. London.
- STEINMANN, G. (1882): Pharetronen-Studien. - *N. Jb. Miner. Geol. Paläont.*, **2**: 139-191, Stuttgart.

Plate 1

Fig. A-C: *Amblysiphonella adnetensis* nov. sp. Scale 20 μ m.

Fig. A: Holotype (H) conjoined with the paratype (P). Both specimens are cut in oblique sections exhibiting the crescent-shaped chambers and thin and equally perforated chamber walls.

Fig. B: Section opposite to section in Fig. A. H indicates the holotype and P the paratype. The white arrow refers to the section illustrated in fig. C.

Fig. C: Section, which is shown with an arrow in Fig. 2. The dashed line marks the outline of the holotype (H) to paratypes (P).

