

Klaamannipora persiaensis, a New Silurian Tabulate Coral from Iran

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Abstract A new species of the favositid tabulate coral, *Klaamannipora persiaensis*, is described from the late Llandovery (or early Wenlock) unnamed formation in the Kerman area of southern East-Central Iran. This species represents the oldest record of *Klaamannipora*, and differs from six previously known species of the genus by the combination of its relatively large branch diameter with numerous corallite number, very wide peripheral zone, and perpendicularly oriented distal corallites to the branch axis.

Key words: Early Silurian, tabulate coral, Favositidae, *Klaamannipora persiaensis*, Iran

Introduction

The favositid tabulate coral *Klaamannipora* was established by Mironova (1974) on the basis of the Ludlow (Late Silurian) species described as *Favosites coreaniformis* Sokolov, 1952. There are six previously described species referable to this genus that known from the Late Silurian to Early Devonian in Estonia, the Arctic Urals, and Siberia. Although the additional record concerning *Klaamannipora* has not been acquired since the Mironova's generic definition, a single corallum of this genus was discovered by two of us (Y. K. and D. W.) from the Early Silurian limestone indicating a late Llandovery (or early Wenlock) age (Niko *et al.*, 1999) in the Kerman area of southern East-Central Iran, and it represents the first occurrence of the genus in pre-Ludlow strata. We describe below a new species, *Klaamannipora persiaensis*, on the basis of this specimen. The geology of the type locality is referable in Huckriede *et al.* (1962), Zohrenbakhsh and Vahdati Daneshmand (1992), and Rickards *et al.* (1994).

Specimen number is that of the National Science Museum, Tokyo, where the holotype is deposited.

Systematic Paleontology

Family Favositidae Dana, 1846

Genus *Klaamannipora* Mironova, 1974

Type species: Favosites coreaniformis Sokolov, 1952.

Klaamannipora persiaensis sp. nov.

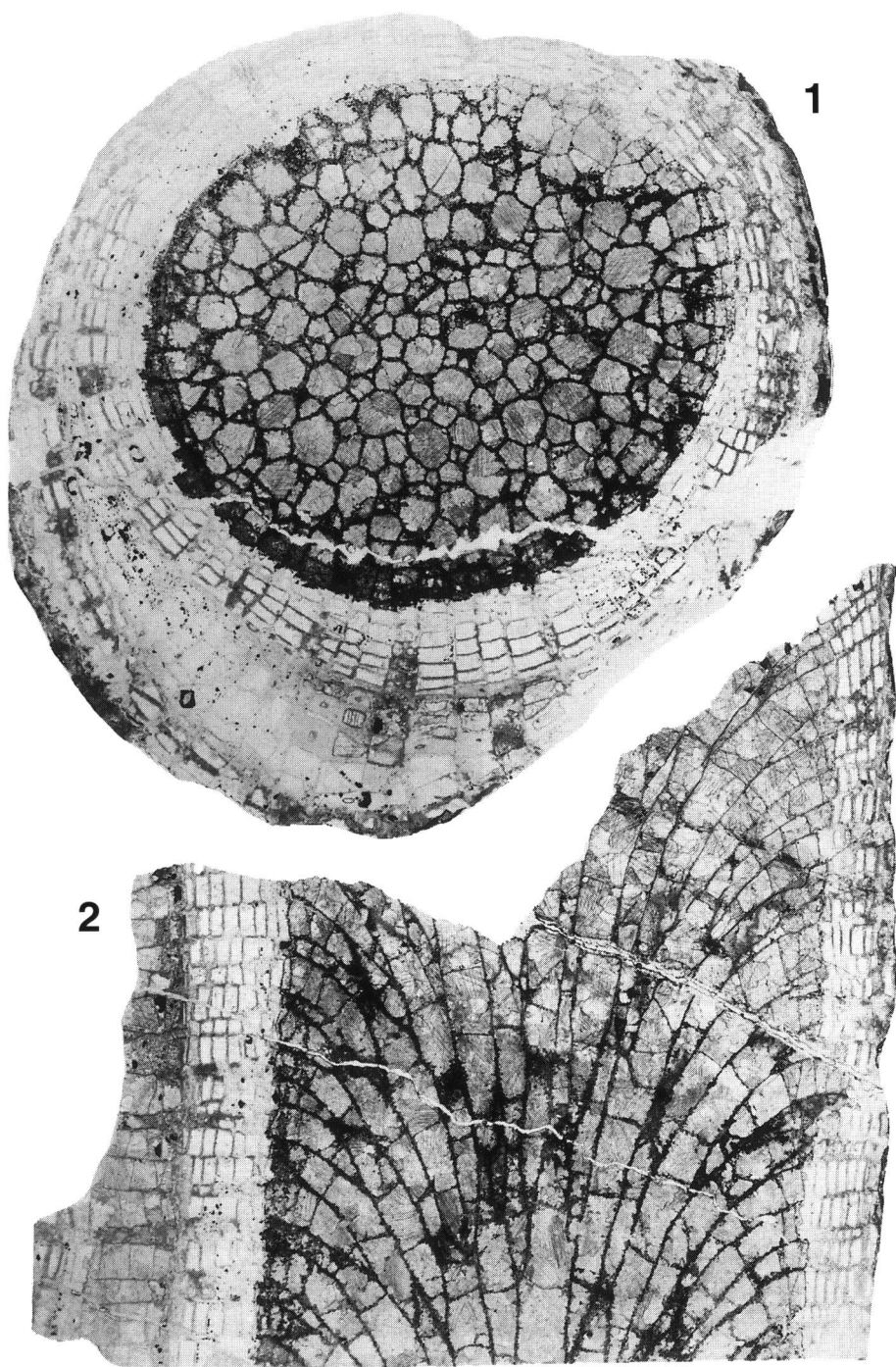
Figs. 1, 2

Holotype: NSM PA14381, from which three thin sections were made.

Diagnosis: Species of *Klaamannipora* with relatively large branch diameter attaining 14.2 mm in radius; number of corallites in cross section of branch numerous, approximately 250, caused by abundant lateral increase of new corallites; peripheral zone very wide, its width/branch radius approximately 0.5; distal corallites perpendicular to branch axis; peripheral tabulae may thickened.

Description: Based on single cylindrical corallum of relatively thick branch with maximum observed size attaining 37.0 mm in length and 14.2 mm in radius, cerioid; branching not recognized. Corallites prismatic, gradually expanded, numerous; there are approximately 250 corallites in cross section of branch; each corallite consists of gently divergent proximal portion in axial zone of branch and distal nearly straight portion that is perpendicularly oriented to branch axis; distal portions form very wide peripheral zone of branch, its width/branch radius approximately 0.5; increase of new corallites lateral, abundant, but restricted to proximal portion; cross section of corallites and tabularia is polygonal, 3–4 sided in early growth stages of new corallites, then their profiles shift 5–10, usually 6–8, sided in distally; corallite diameters relatively large in distal ends for superfamily Favositicae, range from 0.23 to 1.46 mm, with 1.20 mm mean in distal portion; calice not preserved. Intercorallite walls, composed of median dark line and steroplasm, thin in axial zone of branch with 0.06 mm, then weakly thickening in peripheral zone of branch and attain approximately 0.15 mm in thickness; mural pores elliptical with lateral compression in cross section, 0.25×0.31 mm in diameter, common in corallite face; apparent septal spine not detected; tabulae complete, rectangular or occasionally oblique to corallites with almost flat profiles, common (2–4 tabulae in 5 mm of corallite length) in axial zone of branch and somewhat abundant (ditto: 6–8 in 2.5 mm) in inner half of peripheral zone of branch, most peripheral tabulae slightly taper down in number to 3–5 tabulae in 2.5 mm of corallite length; peripheral tabulae may slightly thickened, and arrange nearly same level in neighboring corallites.

→Fig. 1. *Klaamannipora persiaensis* sp. nov., thin sections, holotype, NSM PA14381. 1, transverse section. 2, longitudinal section. Note inorganic spinose structure enveloping corallite walls and tabulae with iron stain, it is apt to mislead as septal element. Both are ×5.



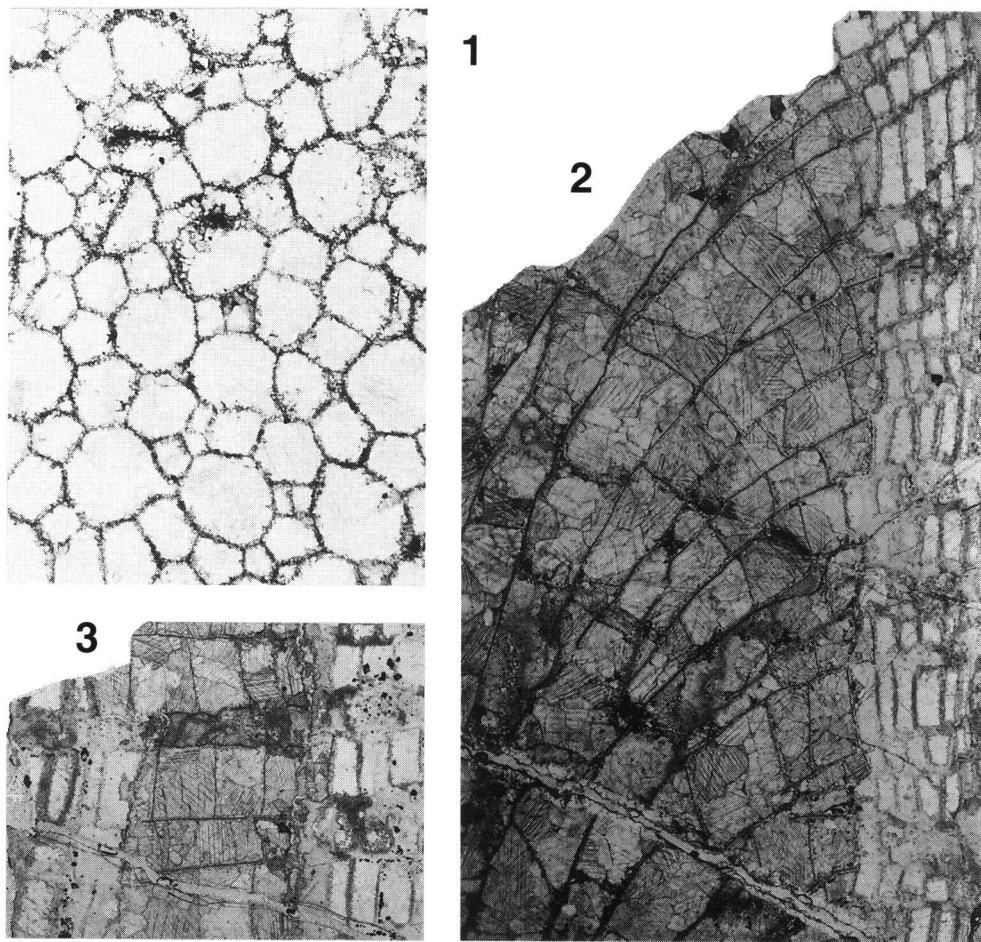


Fig. 2. *Klaamannipora persiaensis* sp. nov., thin sections, holotype, NSM PA14381. 1, transverse section showing axial zone. 2, longitudinal section showing junction of axial and peripheral zones. 3, longitudinal section showing outer half of peripheral zone. All figures are $\times 10$.

Discussion: This late Llandovery (or early Wenlock) specimen is characterized by its cylindrical corallum differentiated into the axial and peripheral zones with the relatively large distal corallite diameters and its weak intracorallite wall thickening in the peripheral zone, whose diagnosis shares with the favosited genus *Klaamannipora* (Mironova, 1974). Thus, this discovery extends the stratigraphic range of the genus of which previously known oldest record was Ludlow.

Klaamannipora persiaensis sp. nov., differs from the type species, *K. coreaniformis* (Sokolov, 1952, pl. 20, figs. 3–6) from Sarema Island of Estonia, in possession of about double the branch size (14.2 mm in radius versus 10–15 mm in diameter in

K. coreaniformis), the large frequency of increase of new corallites, the much numerous corallite number recognized in cross section of the branch (approximately 250 versus 70–100 in *K. coreaniformis*), and no thickened tabula was described in the type species. The branch diameter and corallite number of *Klaamannipora persiaensis* also fall near the ranges of *K. grandis* (Dubatolov, 1969, pl. 51, figs. 1a, b, v, 2a, b, v, g) from the Lower Devonian of the Cherski Mountains (Khr. Cherskogo), north-eastern Siberia and *K. rzonznitkage* (Dubatolov, 1959, pl. 40, figs. 1, 2a, b, v, 3a, b) from the Lower Devonian of the Kuznetsk Basin, western Siberia, but the ratios of the peripheral zone width to the branch radius are smaller in the both Siberian species (approximately 0.5 versus approximately 0.3 in *K. grandis* and 0.2–0.4 in *K. rzonznitkage*). In addition, the distal corallites of *Klaamannipora rzonznitkage* are oblique to the branch axis with 60°–70° in angle.

Etymology: The specific name is derived from Persia, which is the historic country name of the type locality.

Occurrence: The specimen was collected from an unnamed formation near Banestan Village at locality 3, whose geographic and stratigraphic positions are given by Niko *et al.* (1999).

Acknowledgment

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