Appendix 1

List of fossils, described as new by Senowbari-Daryan et al. from the Permian and Mesozoic of Iran

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Remarks
During the last decades numerous fossils of Permian and Mesozoic (Triassic, Jurassic and Cretaceous) were described as new by the author of this appendix and his co-authors. The majority of these fossils were recognized in thin section analyses of carbonates and published in different journals on the world, mostly in the European countries. It seems to be helpful, especially for geology and palaeontology students, palaeontologist and geologist, who are working (will work) on these geological time scales. Hopeful the list of these fossils will help them to correct our carelessness and enlarge this list. The detail descriptions and publications of the following fossils were not successful without the active contribution of the co-authors, who are thanked here with all my heart.
The original diagnosis with small and cursive letters follows the each fossil list. If diagnosis was very long, they are interrupted or ended with "….".
The following lists are ordered according to the geological time and the corresponding fossil groups. Exact references are added to the individual fossil lists.

Permian

Porifera
Amblysiphonella iranica nov. sp. Senowbari-Daryan & Hamedani, 2002 – Porifera ("Sphinctozoa"), (Revue de Paléobiologie Genéve, 21/2: p. 797), most probably upper Lower Permian.
"Amblysihonella having large cylindrical, single or rarely dichotomously branched body with a weakly annulated outer surface. The ring-like chambers are relatively constant in height and width. Retrosiphonate axial spongocoel reaches a diameter of u to 47% of the whole stem diameter.Vesiculae are lacking or rarely developed within interiors of the older chambers".

Amblysiphonella rigbyi nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Sphinctozoa"), (Geologica Carpatica, 56/5: p. 383, fig. 4.1-5.). Lower Permian, Jamal Formation (most probably Bolorian).
"Small specimen of Amblysihonella with weakly defined outer but clear internal segmentation. The thick outer-, inner- and endowalls are coarsely perforated. The barrel-like ring-chambers are relatively high and lack vesiculae or other internal structures within the chamber interiors".

Baghevangia minima nov. gen. nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Sphinctozoa"), (Geologica Carpatica, 56/5: p. 385, fig. 5.1-10, fig. 6). Lower Permian, Jamal Formation (most probably Bolorian).
"Perforate, moniliform, weakly segmented, unbranched and small sponge of 2 mm in diameter with a wide axial spongocoel of prosiphonate(?) type. Filling skeleton of reticular to septate type resemble some archaeocyathid constructions. Microstructure of skeleton and spicules are not known".

Shotorispongia permica nov. gen. nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Sphinctozoa"), (Geologica Carpatica, 56/5: p. 387, Fig. 7, 8.1). Lower Permian, Jamal Formation (most probably Bolorian).
"Upright cylindrical sponge with glomerate arrangement of the crescentic chambers. Several chambers (at least 4) occur in each growth level. Chamber wall (as compared to S. biserialis) coarsely perforated, Lacks vesiculae and filling structures".

Shotorispongia biserialis nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Sphinctozoa"), (Geologica Carpatica, 56/5: p. 388, Fig. 8.2). Lower Permian, Jamal Formation (most probably Bolorian).
"Upright cylindrical sponge with glomerate arrangement of hemispherical chambers. In each growth level fewer chambers (in longitudinal section two, in whole sponge may be four) than in the receding species. Chamber walls relatively thick and finely perforated (as compared to S. permica). Spongocoel, vesiculae, and filling structures lacking".

Sollasia cylindrica nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Sphinctozoa"), (Geologica Carpatica, 56/5: p. 390, fig. 4.6, fig. 9.2/S, 4-6, 8, fig. 13.1/S, 3). Lower Permian, Jamal Formation (most probably Bolorian).
"A small species of the genus Sollasia with almost cylindrical or weakly annulated outer morphology, but with clear internal segmentation. Individual segments are usually higher than the diameter of the sponge. Exowalls contain ostia. Interwalls (wall between the segments) with a large opening (cryptosiphonate). Skeletal mineralogy was aragonite, microstructure spherulitic".

Bicoelia spinosa nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Inozoa"), (Geologica Carpatica, 56/5: p. 393, fig. 9.3/T, fig. 10.7/T, fig. 11.6-12, fig. 13.7). Lower Permian, Jamal Formation (most probably Bolorian).
"Small species with two axial spongocoels separated by a thin wall. Exowall and endowall well developed. Exowall usually thicker than the endowall. Loose fibrous structure between the exo- and endowall. Sponge surface with small depressions appearing as spine-like elements in thin section".

Maeandrostia radiata nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Inozoa"), (Geologica Carpatica, 56/5: p. 399, fig. 12.7-8, fig. 13.1/F, 2/F, 4-6). Lower Permian, Jamal Formation (most probably Bolorian).
"*Cylinderical specimens of Maeandrostia with coarse fibrous skeleton and thick exo- and endowalls (spongocoel wall). Fibrous skeleton has radial arrangement between the exo- and endowall. Both walls are pierced by scattered openings. Ostia of outer wall are lipped"*.

Solutossaspongia tabasensis nov. gen. nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2005 – Porifera ("Inozoa"), (Geologica Carpatica, 56/5: p. 399, fig. 13.8/S. 9, fig. 14.1-3, fig. 15.7). Lower Permian, Jamal Formation (most probably Bolorian).
"Cylindrical sponge with a distinct and porous outer wall. The interior of the sponge is filled by fine reticular fibrous structure. Lacks spongocoel and inhalant or exhalant canals. Spiculae not known".

Shotorithalamia tubulara nov. gen. nov. sp. Senowbari-Daryan, Rashidi & Hamedani, 2003 –Porifera ("Sphinctozoa"), (Geologica Carpatica, 57/6: p. 429, fig. 2.1-3, 3, 4). Lower Permian (most probably Bolorian.
"Aporate sphinctozoan sponge with ring-chambers arranged around an axial spongocoel of ambisiphonate type. The exo-and endowalls are pierced by ostia extended inwards by multibranched tubes with perforated walls. The openings of exowall are rimmed. Vesiculae and other internal structures are lacking".

Amblysiphonella hambastensis nov. sp. Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera ("Sphinctozoa"), (Facies, 53: p. 581, Fig. 5e-g, 6e-f). Upper Permian (Murghabian), Surmaq Formation.
"Species of Amblysiphonella with relatively constant chamber height, well-perforated chamber and

spongocoel walls. Pores of exowall are partly dichotomously branched. Chamber interiors are without vesiculae".

Discosiphonella iranica nov. sp. Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera ("Sphinctozoa"), (Facies, 53: p. 576, Fig. 3, 4a-e, g, 6c, g, I, 18f). Upper Permian (Murghabian), Surmaq Formation.
"Small species of the genus Discosiphonella with small cyst- or egg-like chambers arranged in on layer around the axial retrosiphonate spongocoel. Endowall, pierced by smaller pores, is thicker than the exowall with relatively larger pores. Exowall with cortex that is pierced by smaller pores. Chamber interiors are without vesiculae".

Cystothalamia surmaqensis nov. sp. Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera ("Sphinctozoa"), (Facies, 53: p. 587, Fig. 7a-I, 15f, 16e). Upper Permian (Murghabian), Surmaq Formation.
"Straight or curved, cylindrical sponge composed of numerous spherical chambers arranged in several layers (mainly two) around an axial spongocoel. Most characteristic of the sponge is the complicated (labyrinthic) canal system within the chamber walls. Additional large openings connect the chamber interiors with the outside and with the neighbouring chambers".

Hambastella sincassa nov. gen. nov. sp. Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera ("Inozoa"), (Facies, 53: p. 596, Fig. 8e, 9a-f, 10c-e, 12g). Upper Permian (Murghabian), Surmaq Formation.
"Cylindrical, U- or V-shaped thin walled sponge with a wide spongocoel. The wall is perforated by a complicated pore system with spongy appearance. Tabulae-like elements within the spongocoel are oriented perpendicular or oblique to the sponge axis".

Hambastella cumcassa nov. sp. Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera ("Inozoa"), (Facies, 53: p. 596, Fig. 10a-b, f-g, 11, 17h, 8e, 9a-f, 10c-e, 12g). Upper Permian (Murghabian), Surmaq Formation
"Cylindrical, U- or V-shaped thin walled sponge with a wide spongocoel. The wall of the sponge is perforated by a complicated pore system with spongy appearance. In addition, several large and irregular cavities occur within the sponge wall. Tabulae-like elements occur within the spongocoel".

Maeandrostia? *dubia* nov. sp.Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera ("Inozoa") (Facies, 53: p. 599, Fig. 15e, h-I, 16a-f, 17 g, j). Upper Permian (Murghabian), Surmaq Formation.
"Cylindrical sponge with a spongocoel, surrounded by a thick sponge wall with a loose reticular fibre skeleton. A thin outer layer of the wall is formed by densely acked fibre skeleton and the spongocoel has a separate thin, dense wall layer, it is without ostia".

Surmaqella pustulata nov. gen. nov. sp. Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera ("Inozoa") (Facies, 53: p. 599, fig. 13a-g, 14). Upper Permian (Murghabian), Surmaq Formation.
"Cylindrical sponge with a thick wall and narrow axial spongocoel. Sponge wall is composed of coarse, more or less radially arranged fibre skeleton that produces tube-like appearing cavities between fibres of the skeleton. Outer surface contains pustule-like elevations pierced by small openings. Additional pores may occur in the outer wall of the sponge".

Raanespongia iranica nov. sp. Senowbari-Daryan, Hamedani & Rashidi, 2007, Porifera (Lithistida) (Facies, 53: p. 609, fig. 8a-f). Upper Permian (Murghabian), Surmaq Formation.
"Spherical or mushroom-shaped sponge composed of sphaeroclone spicules arranged in lines of rods radiating and oriented parallel to the growth direction. Cavities, between the rods of sphaeroclones, appear as tubes or small canals in longitudinal section. Additionally large and radiating canals pass through the sponge skeleton".

Regispongia fluegeli nov. sp. Rigby, Senowbari-Daryan & Hamedani, 2005, Porifera (Heteractinida) (Facies, 51: p. 536, fig. 2). Lower Permian.
"Large, irregularly bent cylindrical sponge with open axial spongocoel, principal skeleton of secondarily

overgrown multirayed spicules and enlarged irregular fibres; both dermal and gastral layers differentiated and of small spicules, including octactines and other polyactines; canals in skeleton small and irregular, although generally subhorizontal and radial, between and within fibrous elements; a few large exhalant canals may be resent and convergent toward the spongocoel, or as longitudinal segments within the thick wall".

Iranospongia nov. gen. Rigby, Senowbari-Daryan & Hamedani, 2005, Porifera (Heteractinida), (Facies 51: p. 536). Lower Permian.
Iranospongia circulata nov. gen. nov. sp. Rigby, Senowbari-Daryan & Hamedani, 2005, Porifera (Heteractinida) (Facies, 51: p. 536, fig. 3). Lower Permian.
"Some as for genus with outer vertical exhalant canals 0.6-0.8 mm in diameter, with interconnected inhalant canals 0.1-0.2 mm in diameter throughout skeleton".

Green Algae
Dasycladales

Imperiella crassiparietalis nov. sp. Rashidi & Senowbari-Daryan, 2010 (Facies, 56: p. 115, fig. 7a-i, 8d, e, j, 9a, b, e, 10c). Permian, Jamal Formation.
"Cylindrical thallus without internal and external annulations. The relatively thick internal wall around the axial stem is pierced by a small pore leading to the first and higher orders of laterals. Four orders of laterals. The wall between individual whorls is thick. Euspondyl arrangement of the laterals".

Imperiella graclis nov. sp. Rashidi & Senowbari-Daryan, 2010 (Facies, 56: p. 117, fig. 7j-k, 8a-c, f-I, 9c, d, 10d). Permian, Jamal Formation.
"Slender species of the genus Imperiella without internal and external annulations. Laterals of first order (at least four recognizable in longitudinal sections) are originated dichotomously from a short vestibule. Without thin internal wall around the axial stem and with widened cavity in front of the first order of laterals. Laterals are narrow and are of euspondyl arrangement".

Nanjinoporella tabasensis nov. sp. Rashidi & Senowbari-Daryan, 2010 (Facies, 56: p. 119, fig. 11a-n, 12, 13). Permian, Jamal Formation.
"Species of the genus Nanjinoporella with cylindrical stem, thin thallus wall and wide axial cavity. Without outer annulations, but the thallus wall is internally extended at regular distance ring-like into the main axis, causing weak internal annulations. Eusponsyl arrangement of laterals".

Tabasoporella tulipaformia nov. gen. nov. sp. Rashidi & Senowbari-Daryan, 2010 (Facies: 56, p. 120, fig. 14a-f, 15a-r, 16, 17, 18). Permian, Jamal Formation.
"Cylindrical and straight thallus with tufts of 3-6 laterals originate from a common point. Arrangement of laterals is metaspondyl and each lateral starts with a thin stalk becoming rapidly wide like a wine-glass of tulip-shaped (phloiophore). Cavities between the tufts of laterals are triangular, moderately rounded or trapezoid in shape. Thin internal wall around the axial stem. Thallus is without internal or external annulations".

Tabasoporella lutensis nov. sp. Rashidi & Senowbari-Daryan, 2010 (Facies, 56: p. 125, fig. 19a-e). Permian, Jamal Formation.
"Thallus cylindrical, without inner and outer annulations. Laterals originate from a common point and are arranged in whorls (metaspondyl). Each whorl contains two rows of stalks. The diameter of laterals (stalks) increase rapidly to build tulip-like ends, which become narrower and open with a pore to the outside".

Pseudotabasoporella permica nov. gen. nov. sp. Rashidi & Senowbari-Daryan, 2010 (Facies: 56, p. 129, fig. 21a-o, 22a, b). Permian, Jamal Formation.
"Cylindrical thalli without internal and external annulations. Mataspondyl arrangement of the laterals.

Phloiophore. First order of laterals originates from a common point. Laterals of second order are wine-glass or tulip-shaped like in representatives of Tabasoporella".

Codiaceans

Anchicodium iranicum nov. sp. Senowbari-Daryan & Rashidi, 2010 (Rivista Italiana di Paleontologia e Stratigrafia, 116/1: p. 10, pl. 1, fig. B-C, E-G, pl. 2, fig. A-D, pl. 4, fig. B-C, E, text-fig. 4-6). Permin, Jamal Formation.
"Undulating, curved or straight, tape- or ribbon-like thallus with pith sponge-like appearance. Multibranched threads originate from the centre of the thallus and are oriented perpendicular to the thallus surface. Thallus surface is with swellings and buds".

Anchicodium maximum nov. sp. Senowbari-Daryan & Rashidi, 2010 (Rivista Italiana di Paleontologia e Stratigrafia, 116/1: p. 12, pl. 4, fig. F-G, text-fig. 7). Permin, Jamal Formation.
"Specimen of Anchicodium with the largest thickness of the thallus and skeletal elements among the known species".

Iranicodium asymmetricum nov. gen. nov. sp.. Senowbari-Daryan & Rashidi, 2010 (Rivista Italiana di Paleontologia e Stratigrafia, 116/1: p. 12, pl. 1, fig. A, pl. 3, fig. A-D, pl. 4, fig. A, D, text-fig. 8-10). Permin, Jamal Formation.
"Straight or curved tape-like thallus with swellings and different skeletal elements in opposite surface of the thallus. One side, with small threads is usually thicker and the threads are oriented perpendicular to the thallus surface, the other side is usually thinner and …".

Bryozoans

Dystritella leptosa nov. sp. Ernst, Senowbari-Daryan & Hamedani, 2006 (Geodiversitas, 28/4: p. 550, fig. 4A-E). Middle Permian, central Iran.
"Thin encrusting colony with abundant exila zooecia, acanthostyles, and moderately thickened walls".

Ascopora gracilis nov. sp. Ernst, Senowbari-Daryan & Hamedani, 2006 (Geodiversitas, 28/4: p. 552, fig. 3E-I). Middle Permian, central Iran.
"Delicate ramose colony with a wide axial bundle, abundant hemiphragms, and small acanthostyles".

Rectifenestella crassinodata nov. sp. Ernst, Senowbari-Daryan & Hamedani, 2006 (Geodiversitas, 28/4: p. 554, fig. 4F-H). Middle Permian, central Iran.
"Moderately robust reticulated colony with large and widely spaced keel nodes".

Penniretepora afghanica nov. sp. Ernst, Senowbari-Daryan & Hamedani, 2006 (Geodiversitas, 28/4: p. 564, fig. 8D-F). Middle Permian, central Iran.
"Straight main branch with frequently diverging secondary branches. Apertures circular, arranged in two rows both on the main and secondary branches. Keel low, undulating, developed both on the main branch and secondary branches. Reverse side of the colony ribbed. Small microstylets in the outer laminates skeleton".

Lakkella jamalica nov. gen. nov. sp. Ernst, Senowbari-Daryan & Hamedani, 2006 (Geodiversitas, 28/4: p. 574, fig. 11L-P, 12). Middle Permian, central Iran.
„Branched colony with 4-6 rows of short tubular autozooecia opening on the one side. Autozooecia elongated oval to slightly rectangular in deep tangential section with well developed vestibule. Autozooecial apertures oval to lens-shaped. Thin ridges between apertures. Single leptozooecium and small acanthostyle in the wall between apertures longitudinally; rare smaller styles between apertures. Inner granular skeleton hyaline, well developed; outer lamellar skeleton relatively thick".

Streblotrypa (*Streblascopora*) *supernodata* nov. sp. Ernst, Senowbari-Daryan & Hamedani, 2009 (Geobios 42: p. 138, fig. 3K-N). Lower Permian, Jamal Formation.
„Ramose branched colonies; axial bundle with 11-13 axial zooecia arranged in 3-4 rows; inferior hemisepta long, superior hemisepta short; 3-4 large nodes surrounding each autozooecial aperture”.

Problematicum (Cyanonphycee?)

Vangia nov. gen. Senowbari-Daryan & Rashidi 2011 – (Problematicum, Cyanophycea?), (Rivista Italiana di Paleontologia e Stratigrafia, 117/1: p. 105-114). Lower Permian, Jamal Formation (most probably Bolorian).
„Nodules of aggregates, which are composed of irregularly chambers. Chamber walls are thin and contain Vesiculae-like structure”.

Type species: *Uvanella telleri* Flügel 1984. *In*: Flügel, E., Kochansky-Davidé, V. & Ramovs, A. (1984): A Middle Permian calcisponge/algal/cement reef; Straza near Bled, Slovonia. Facies 10: 179-256.

Triassic

Porifera

Peronidella iranica n. sp. Senowbari-Daryan, 2003 - Porifera (“Inozoa”), (Jahrbuch der geologischen Bundesanstalt Wien, 143/1: p. 66, pl. 1, fig. 1-6, pl. 2, fig. 1-6, pl. 3, fig. 1-3, text-fig. 5). Nayband Formation, Upper Triassic.
„Multi-branched and dendroid sponge with cylindrical branches. Each branch with a spongocoel passing internally through the branch. Spongocoel with a distinct wall, which is pierced by openings. Most probably aragonitic mineralogy and spherulitic microstructure”.

Anguispongia parva nov. gen nov. sp. Senowbari-Daryan, 2005 - Porifera (“Inozoa”), (Senckenbergiana lethaea, 85/2: p. 266, pl. 2, fig. 1-6, pl. 3, fig. 1-3, Text-fig. 6). Nayband Formation, Upper Triassic.
“Leaf-, ear- or half-funnel-shaped, usually snake-like twisted sheets. The skeleton shows on the outside equally distributed pores. The skeletal elements of the inner part are oriented as vertically lines to the outside and different appearance in thin section. Skeletal mineralogy was primary aragonite, microstructure and spiculae not known”.

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Anguispongia magna nov. sp. Senowbari-Daryan, 2005 - Porifera (“Inozoa”), (Senckenbergiana lethaea, 85/2: p. 267, pl. 3, fig. 4-5, Text-fig. 7). Nayband Formation, Upper Triassic.
“Snake-like Sheets twisted sheets. Distinct cortex covers the outsides of the sheets. The fibre skeleton of the inner part exhibits concentric curved, whose convex side is oriented to the growth direction”.

Aliabadia diversilata nov. gen. nov. sp. Senowbari-Daryan, 2005 - Porifera (“Inozoa”), (Senckenbergiana lethaea, 85/2: p. 269, pl. 4, fig. 1-7, 11-12, pl. 5, fig. 7, Text-fig. 8). Nayband Formation, Upper Triassic.
“Spoon- or leaf-shaped, in cross section appears as half concentric with convex and concave sides. Numerous rimmed ostia are on the convex side. Concave side without inhalant and exhalant canals. The inner part of the sponge is composed of reticulate fibre skeleton. Relics of spherulithic microstructure”.

Lutia pustulata nov. gen. nov. sp. Senowbari-Daryan 2005, Porifera (“Inozoa”), (Senckenbergiana lethaea, 85/2: p. 270, pl. 4, fig. 8, 9?, 10, pl. 5, fig. 1-6). Nayband Formation, Upper Triassic.
“Single or branched sponge without spongocoel. The surface is covered by numerous pustule-like elevations with astorhizal-structures. Primary skeletal mineralogy was most probably aragonite. Microstructure and spicules not known”.

Prestellispongia maxima nov. sp. Senowbari-Daryan 2005, Porifera (“Inozoa”), (Senckenbergiana lethaea, 85/2: p. 271, pl. 5, fig. 9, pl. 7, fig. 1-6). Nayband Formation, Upper Triassic.
“Conical to mushroom-shaped, semi-spherical to spherical or irregular sponge with several exhalant canal bundles. Each bundle is composed of about 20 tubes. Numerous inhalant canals are oriented parallel to

exhalant canal bundles. All canals are connected with the internally reticulate skeleton with pores".

Prestellispongia stellata nov. sp. Senowbari-Daryan 2005, Porifera ("Inozoa"), (Senckenbergiana lethaea, 85/2: p. 271, pl. 8, fig. 1-4, pl. 9, fig. 1-5, pl. 10, fig. 7). Nayband Formation, Upper Triassic.
"Semi-spherical to mushroom-shaped sponge with numerous exhalant canals. The cross section of canals is asterisk-like. The linearly arranged fibre skeleton gives the skeleton an appearance composed of tubes. In cross section the tubes appear as circles".

Vermispongiella delijanensis nov. sp. Senowbari-Daryan 2005, Porifera ("Inozoa"), (Senckenbergiana lethaea, 85/2: p. 272, pl. 6, fig. 1-3). Nayband Formation, Upper Triassic.
"Hemi-spherical to egg-shaped sponge with numerous meandroid-like (similar like meandroid corals), comparable with human brain or the recent sponge Geodia cydonium".

Grossotubenella variabilis nov. sp. Senowbari-Daryan 2005, Porifera ("Inozoa"), (Senckenbergiana lethaea, 85/2: p. 273, pl. 11, fig. 1-6). Nayband Formation, Upper Triassic.
"Sheet-like, cylindrical, egg-shaped or irregular sponge with net-like fibre skeleton. Within the fibre skeleton are located several large and irregularly cavities, which are connected with others and with the outside. Spicules are not known".

Peronidella tenuiparietalis nov. sp. Senowbari-Daryan 2005, Porifera ("Inozoa"), (Senckenbergiana lethaea, 85/2: p. 274, pl. 5, fig. 10-11, pl. 10, fig.. 1-6, 8) Nayband Formation, Upper Triassic.
"Cylindrical (tube-like) sponge with thin wall and wide spongocoel. The wall contains labyrinthic canal system. Inner side of the wall is uneven".

Plagaspongia lutensis nov. gen. nov. sp. Senowbari-Daryan, Rashidi, Amirzadeh, Saberzadeh & Talebi 2011, Porifera ("Spongiomrphida", "Inozoa"), Jahrbuch der geologischen Bundesanstalt, Wien, 151/3+4: p. 356-357, pl. 1, fig. B, pl. 2, figs. A-B, pl. 3, figs. A-H). Nayband Formation, Upper Triassic.
"Irregularly growing and multi-branched spongiomorphid sponge. The branches are mostly oriented perpendicular to each other, producing a coarse net-like structure. Individual branches are cylindrical or oval in cross section, while in longitudinal section they appear two-layered. Skeletal fibres in the axial region are oriented parallel and divergent. On the periphery they are running vertically to the axis of branches".

Iranofungia multiosculata nov. gen. nov. sp. Senowbari-Daryan, Rashidi, Amirzadeh, Saberzadeh & Talebi 2011, Porifera ("Inozoa"), Jahrbuch der geologischen Bundesanstalt, Wien, 151/3+4: p. 358, pl. 4, figs. A-C, pl. 5, figs. A-G) Nayband Formation, Upper Triassic.
"Mushroom-shaped sponge with numerous spongocoels ending in circular to polygonal clusters of osculi on the sponge top, which appear like coral corallites. On the axial region of the osculum-circle a pillar-like element occurs, resembling the columella of corals…."

Lovcenipora iranica nov. sp. Senowbari-Daryan & Amirhassankhani 2013, Porifera ("Chaetetid sponge") (Zitteliana A53: p. 18, pl. 1, figs. C-F, pl. 2, figs. A-G). Nayband Formation, Upper Triassic.
"Usually large chaetetid sponge with repeated changes of direction of the fan-shaped groups of tubes; tubes oriented parallel to each other within a fan, but converse to the tubes forming neighbouring fans; tubes within a fan showing a water-jet-like pattern originating from a single tube at the base of fan; tube interiors lack tabulae.

Murania? *leipnerae* nov. sp. Senowbari-Daryan 2009, Porifera ("Chaetetid sponge"), (Journal of Alpine Geology, 51: p. 33, pl. 1, fig. A-G, pl. 2, fig. A-F). Nayband Formation, Upper Triassic.
"Erected, solid and cylindrical specimen composed of numerous close-set columns. Individual columns show crystal needles arranged water-jet-like running upward to the outside. Relics of spicular skeleton (styles?) are perceptible in the center of columns. Well recognizable growth stages".

Radiofibra norica nov. sp. Senowbari-Daryan, Seyed-Emami & Aghanabati 1997, Porifera ("Inozoa"), (Rivista Italiana di Paleontologia e Stratigrafia, 103/3: p. 29, pl. 1, fig. 1-7, pl. 2, fig. 1-6). Nayband Formation, Upper Triassic.
"Relatively large, cylindrical to subcylindrical and dichotomously branched sponge with spongocoel passing through the whole sponge body. Without distinct dermal layer around the sponge wall or spongocoel wall. The skeletal fibres are arranged upwardly divergent, like a water jet, in longitudinal section. In cross sections the skeletal fibres have a reticular appearance with irregular looking and radially arranged tube-like interfibre spaces. Microstructure, as well as spicular skeleton, is not known".

Permocorynella maxima nov. sp. Senowbari-Daryan, Seyed-Emami & Aghanabati 1997, Porifera ("Inozoa"), (Rivista Italiana di Paleontologia e Stratigrafia, 103/3: p. 302, pl. 3, fig. 1-8, pl. 6, fig. 5, pl. 7, fig. 1-3, 6, text-fig. 7). Nayband Formation, Upper Triassic.
"Large, single or dichotomously branched cylindrical to club-shaped sponge with an axial spongocol that extends deeply into the sponge body. Inhalant and exhalant canals well developed. Skeletal fibres are relatively coarse".

Marawandia iranica nov. gen. nov. sp. Senowbari-Daryan, Seyed-Emami & Aghanabati 1997, Porifera ("Inozoa"), (Rivista Italiana di Paleontologia e Stratigrafia, 103/3: p. 314, pl. 5, fig. 1-7, pl. 6, fig. 1-4, 7, pl. 7, fig. 5, 7). Nayband Formation, Upper Triassic.
"Cylindrical, branched inozoid sponge with several (u to 10) exhalant tubes, usually of the same size and not located in the axial part of the sponge that pass through the sponge. Each tube has its own wall pierced by openings leading to the sponge interior. Outer surface of the sponge is characterized by a distinct wall perforated by a labyrinthic canal system. Loosely packed skeletal fibres of reticular type fill the interior of sponge body. Microstructure, as well as spicular skeleton, is not known".

Enaulofungia? *triassica* nov. sp. Senowbari-Daryan, Seyed-Emami & Aghanabati 1997, Porifera ("Inozoa"), (Rivista Italiana di Paleontologia e Stratigrafia, 103/3: p. 316, pl. 7, fig. 4, pl. 8, fig. 1-5). Nayband Formation, Upper Triassic.
"Plump, globular to cylindrical and multibranched sponge with an undistinct star-like axial spongocoel produced by convergence of not well developed exhalant canals. A fine reticular fibrous skeleton, with a radially and concentric arrangement in cross section forms the thick sponge wall. Without inhalant canals. A thin exowall as a cortex covers the outer surface of the sponge. Microstructure, as well as spicular skeleton, is not known".

Amblysiphonella najafiani nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 183, pl. 7, fig. 2, 6-7, Text-fig. 12). Nayband Formation, Upper Triassic.
„Smallest species of the genus Amblysiphonella with very fine perforated exowalls. The inter- and endowalls are pierced only by large openings. Interwalls are thickened. Vesiculae are lacking".

Annaecoelia? parva nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologoschen Bundesanstalt Wien, 145/2: p. 184, pl. 29, fig. 4, 6). Nayband Formation, Upper Triassic.
„Small sphinctozoid sponge with irregular to glomerate arrangement of the chambers, and prosiphonate type of spongocoel. Chamber interiors without vesiculae or other filling skeletons. Very finely perforated(?) chamber walls".

Cryptocoelia maxima n. sp. Amirhassankhani, Senowbari-Daryan & Rashidi, Porifera ("Sphinctozoa"), (Rivista Italiana di Paleontologia e Stratigrafia, 120/3: p. 295, pl. 1, fig. 6, pl. 2, fig. 2, pl. 4, fig. 6, Fig. 9). Nayband Formation, Upper Triassic.
"Large species, stum conical-shaped with a trabecular, without recognition of the internally crescent-like low chambered construction, spongocoel pro-? Pseudosiphonate?, filling skeleton trabecular".

Nevadathalamia valiabadensis nov. sp. Senowbari-Daryan & Hamedani 1999, Porifera ("Sphinctozoa"), (Rivista Italiana di Paleontologia e Stratigrafia, 105/1: p. 82, pl. 1, fig. 6, pl. 6, fig. 1-2, text-fig. 3). Nayband Formation, Upper Triassic.
„Porate sphinctozoan with an axial canal bundle composed of several (may be 10?) single tubes. Tubular-granular structure fills the chambers, especially the older chambers. Chamber arrangement is catenulate".

Stylothalamia hambastensis nov. sp. Senowbari-Daryan & Hamedani 1999, Porifera ("Sphinctozoa"), (Rivista Italiana di Paleontologia e Stratigrafia, 105/1: p. 90, pl. 5, fig. 1-2, pl. 6, fig. 4-5). Nayband Formation, Upper Triassic.
"Porate, cylindrical to conical single thalamid sponge with several crescent-like low chambers; chamber interiors filled with pillar-like structures; outer segmentation indistinct; retrosiphonate central tube: vesiculae absent; primary skeletal mineralogy probably aragonite".

Parauvanella ferdowsensis nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 177, pl. 1, Fig. 1-8, pl. 2, fig. 1-2, pl. 15, fig. 1/P, Text-fig. 8-9). Nayband Formation, Upper Triassic.
„Aggregates composed of a cluster of spherical to subspherical chambers with glomerate arrangement. The relatively thin chamber walls are pierced by numerous, unbranched circular to oval pores. Chamber interiors are without filling structure and usually without vesicular skeleton. Primary aragonite skeletal mineralogy. Spicules are not known".

Parauvanella delijanensis nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 179, pl. 2, fig. 5, pl. 4, fig. 4-6, pl. 5, fig. 5-6, Text-fig. 10). Nayband Formation, Upper Triassic.
„Dome-shaped or irregular sponges composed of aggregates of numerous, irregularly flattened, crescent-like chambers. Outer segmentation is poorly recognizable. Chamber walls are pierced by different sizes of pores with uneven distribution. Several exhalant canals may be developed in the sponge aggregate. Without internal filling structure and vesiculae. Primary skeletal mineralogy was most probably aragonite, spicules are not known".

Colospongia iranica nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 180, pl. 2, fig. 3/C, pl. 3, fig. 1-7, pl. 4, fig. 1/C, 2/C, 3, 7, Text-fig. 26). Nayband Formation, Upper Triassic.
„Porate, single or branched stems with moniliform arrangement of the chambers. Chambers spherical to hemispherical. Interior of chambers is usually filled with organic(?) filling structure or cement, rarely with micrite. In some chambers rare pillar-like elements extended from the chamber roofs into the chamber interior. Primary aragonite skeletal mineralogy, spicules are not known".

Kashanella irregularis nov. gen. nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 181, pl. 5, fig. 4, pl. 19, fig. 6, pl. 20, fig. 7, pl. 21, fig. 6-7). Nayband Formation, Upper Triassic.
„Chambered sponge composed of several irregularly shaped chambers arranged moniliform one above the other. The most characteristic feature of the sponge is the perforation pattern of the chamber walls which are pierced by labyrinth-like complicated canal system. The chamber roofs may contain one or several osculi. Lack filling structure and vesiculae".

Nevadathalamia variabilis nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 185, pl. 10, fig. 1-6, 7?, pl. 11, fig. 1-6, pl. 28, fig. 12-14). Nayband Formation, Upper Triassic.
„Single or branched(?) species of the genus Nevadathalamia composed of ring-chambers arranged around an axial retrosiphonate spongocoel. Chamber walls perforated with pores having spine-like elements extending from the wall into the pore interior. The wall of the spongocoel (endowall) has the same thickness as the

exowall in some specimens, but in other specimens it is much thinner than the exowall. The endowall has relatively large and rimmed openings that extend into the chamber interior. Chamber interiors may contain some granular or tubular filling structures".

Iranothalamia nov. gen. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 186). Nayband Formation, Upper Triassic.
„Sheet-like perforated thalamid sponge with numerous spherical, tubular or irregular rounded chambers arranged in one or two layers beside and above the other. One side of the sheet is usually more flattened than the other side. Chamber interiors contain some filling structure of granular or tubular(?) type. Vesiculae are lacking".

Type species: *Neoguadaliia incrustans* Boiko 1991. *in*: Boiko E. V., Belyaeva G. V. & Zhuravleva I. T. (1991) - Phanerozoic sphinctozoans from the territory of the USSR.- Nauka. Acad. Sci. USSR, Siberian Department, Institute of Geology and Geophysics, Acad. Sci. Tajikistan, USRR, Institue Tajikistan, 1-223 (in Russian).

Senowbaridaryana rectangulata nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 190, pl. 14, fig. 5/S, pl. 15, fig. 1-3, pl. 16, fig. 1-6). Nayband Formation, Upper Triassic.
„Multibranched stems with low and rectangular ring-chambers arranged around a wide retrosiphonate spongocoel. Chamber interiors contain weakly developed reticular filling structure. Endowall is a little thicker than the inter- and exowalls".

Paradeningeria minor nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 191, pl. 18, fig. 2-3, pl. 19, fig. 4-5). Nayband Formation, Upper Triassic.
„Small, single or branched? specimen with spherical to barrel-shaped chambers. Skeleton fibres are very fine. Axial spongocoel is of retrosiphonate type. A secondary skeleton fills the interior of the spongocoel".

Welteria hamedanii nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 191, pl. 13, fig. 2/C, pl. 20, fig. 1-2, 4-5, 6?). Nayband Formation, Upper Triassic.
„Sponge composed of numerous ring-chambers arranged catenulate one above the other. Chamber walls with complicated canal system (labyrinth-like). Axial spongocoel of retrosiphonate (ambisiphonate?) type is formed by dense axially oriented fibre skeleton. Chamber interior with loose reticular filling structure".

Welteria lutensis n. sp. Senowbari-Daryan, Rashidi & Beitollah 2011, Porifera ("Sphinctozoa) (Rivista Italiana di Paleontotologia e Stratigrafia., 117 (2): p. 272, pl. 1, fig. A, B?, C?, pl. 3, figs. A-F, pl. 4, figs. A-D). Nayband Formation, Upper Triassic.
"Species of Welteria with coarse reticulate filling skeleton within the chamber interiors. Two or three spongocoels pass internally through the sponge. … Two types of secondary skeleton within the chamber: the first type is secreted within the chamber, the second type covers the chamber walls internally…. ".

Deningeria tabasensis nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 192, pl. 18, fig. 1, 4, pl. 20, fig. 3). Nayband Formation, Upper Triassic.
„Mulibranched thalamid sponge composed of numerous funnel-shaped chambers. Chambers usually wider than high. Chamber interiors contain a reticular filling structure. Lacks a spongocoel".

Delijania retrosiphonata nov. gen. nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 193, pl. 5, fig. 1-3). Nayband Formation, Upper Triassic.
„Single or branched sphinctozoid sponge with spore-like internal filling skeleton within the chamber interiors, as well as within the spongocoel. Relatively wide spongocoel of retrosiphonate type. Walls between two chambers (interwalls) are double-layered, and the contact between the chamber layers appears as a dark line".

Tabassidae nov. fam. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 195). Nayband Formation, Upper Triassic.
Tabasia nov. gen. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 195), Nayband Formation, Upper Triassic,
Tabasia maxima nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 196, pl. 24, fig. 4, pl. 25, fig. 5, pl. 28, fig. 10-11, Text-fig. 16). Nayband Formation, Upper Triassic.
„Conical to V-shaped sponge with flattened chambers. Exhalant canals consist of several bundles of tubes ending at star-like (astrorhizal-like) appearing osculi at the top of the sponge. Numerous small tubes, distributed between the exhalant canal bundles through the whole sponge, running parallel to the axis of sponge. Neither internal nor external segmentation clearly recognizable".

Tabasia media nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 197, pl. 23, fig. 1, 6, pl. 24, fig. 1-2, 5-6, pl. 26, fig. 1-5, pl. 27, fig. 1-7, pl. 30, fig. 6-7). Nayband Formation. Upper Triassic.
„Conical, single or branched species with relatively high and easily recognizable chambers. Usually about the half of chamber roofs (the middle part) are pierced by tubes that extend through the chamber interiors. Only one or two canal bundle(s) is(are) developed. Chamber walls with complicated canal system".

Tabasia minima nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 197, pl. 28, fig. 1-3, 4?, 5-9). Nayband Formation, Upper Triassic.
„Smallest species of the genus Tabasia, with well developed outer segmentation. The chambers are usually oriented obliquely to the sponge axis".

Tabasia gregaria nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 198, pl. 24, fig. 3, pl. 25, fig. 1-4, Text-fig. 17-18). Nayband Formation, Upper Triassic.
„Clusters composed of several gregarious specimens. The top of each specimen with clearly developed astrorhizal canals located in depressions. Outer segmentation is more or less distinct. Because of numerous tubes oriented parallel to the axis and passing through the whole sponge the internal segmentation is indistinct. In the center of sponge the tubes may unite to form a canal bundle".

Tabasia? *conica* nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 198, pl. 23, fig. 2-4, 5?, Text-fig. 19-21). Nayband Formation, Upper Triassic.
„Aporate(?) obconical sponge with several axial tubes of ambisiphonate type. Additional tubes extend from the axial tubes into the chamber interiors".

Naybandella prosiphonata nov. gen. nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 201, pl. 9, fig. 6?, pl. 22, fig. 1-8, pl. 23, fig. 4/B, Text-fig. 22-23). Nayband Formation, Upper Triassic.
„Aporate segmented sponge with a spongocoel of retrosiphonate type and catenulate arrangement of the chambers. Without filling structure and vesiculae. Both, the exo- and endowalls (wall of the spongocoel) are pierced by large openings. These openings are united to sieve-like clusters in the exowall. The openings have an expanded rim that continues into the interior of the chambers".

Phraethalamia irregularis nov. sp. Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 202, pl. 15, fig. 4, pl. 29, fig. 1, 2?, 3?, 5?, 7/A, Text-fig. 24). Nayband Formation, Upper Triassic.
„Aporate thalamid sponge with several (may be four?) axial spongocoels of ambisiphonate type. The chambers are arranged around the spongocoels, usually unilaterally (zigzag-like), or rarely ring-like. Perforated tubes extend from the spongocoel wall into the hollow chambers. Chamber walls are relatively thin

and pierced by sporadic ostia. Chamber interiors may contain rare vesiculae but lack filling structures".

Paravesicocaulis naybandensis Senowbari-Daryan 2005, Porifera ("Sphinctozoa"), (Jahrbuch der geologischen Bundesanstalt Wien, 145/2: p. 203, pl. 2, fig. 3/P, pl. 4, fig. 1/P, 2/P, pl. 9, fig. 1, 2?, pl. 31, fig. 1-2, Text-fig. 25-26, 4, pl. 29, fig. 1, 2?, 3?, 5?, 7/A, Text-fig. 24). Nayband Formation, Upper Triassic.
"Catenulate stems consist of spherical chambers with thin walls. Chamber walls imperforate but with rimmed ostia. Asiphonate? or cryptosiphonate?. A spongocoel is lacking. Chamber walls are double-layered between two adjacent chambers. Chamber interiors with concentrically developed vesiculae, that usually cover the ostia".

Amblysiphonella bisiphonata nov. sp. Rashidi & Senowbari-Daryan 2011, Porifera ("Sphinctozoa"), (Annalen des naturhistorischen Museums Wien, ser. A, 113: p. 309-37, pl. 1, fig. A-B). Nayband Formation, Upper Triassic.
"Small species of the genus Amblysiphonella with two spongocoels. Spongocoel walls are pierced by large and rimmed openings. Chamber roofs (interwalls) are much thicker than the exowalls and endowalls (spongocoel walls). Chamber interiors are without filling skeleton and vesiculae".

Amblysiphonella torabii nov. sp. Rashidi & Senowbari-Daryan 2011, Porifera ("Sphinctozoa"), (Annalen des naturhistorischen Museums Wien, ser. A, 113: p. 309-371, pl. 1, fig. H, pl. 9, fig. A,). Nayband Formation, Upper Triassic.
"Smallest species of Amblysiphonella with spherical chambers. Interwalls doubled. Chamber interiors are without filling skeleton and vesiculae".

Parauvanella spinosa nov. sp. Rashidi & Senowbari-Daryan 2011, Porifera ("Sphinctozoa"), (Annalen des naturhistorischen Museums Wien, ser. A, 113: p. 309-371, pl. 1, fig. j, pl. 9, fig. G/1, pl. 10, fig. F/1). Nayband Formation, Upper Triassic.
"Sponge composed of hemispherical chambers with thin and perforated chamber walls. Chamber walls bear spine-like elements internally. Chamber interiors are without any secondary skeleton".

Peronidella pilleri nov. sp. Rashidi & Senowbari-Daryan 2011, Porifera ("Inozoa"), (Annalen des naturhistorischen Museums Wien, ser. A, 113: p. 309-371, pl. 6, fig. A-B, pl. 11, fig. A-C). Nayband Formation, Upper Triassic.
"Single and small specimen of the genus Peronidella with coarse fibre skeleton. Without inhalant and exhalant canals. A large opening may occur between the sponge wall and the spongocoel".

Naybandospongia gigantia nov. gen. nov. sp. Rigby & Senowbari-Daryan 2007, Porifera (Hexactinellida) (Journal of Paleontology, 81/6: p. 1539, fig. 2, 3.1-3.5, 4). Nayband Formation, Upper Triassic.
"Steeply obconical large sponge with deep spongocoel; thick walls with numerous inhalant canals, 0.8-1.5 mm in diameter, in outer 8-12mm of wall, that connect to coarse, straight radial exhalant canals, approximately 3 mm in diameter, that open into spongocoel; skeleton of irregularly oriented and spaced intermingled hexactines of several sizes, …..".

Casearia iranica n. sp. Senowbari-Daryan & Amirhassankhani 2012, Porifera (chambered Hexactinellida) (Rivista Italiana di Paleontologia e Stratigrafia., 118 (2): p. 251, pl. 1, figs. 1-4, pl. 3, figs. 2-3, 7). Nayband Formation, Upper Triassic.
"Chambered cylindrical-conical hexactinellid sponge with ring-chambers and well recognizable outer segmentation. Wide spongocoel is of retrosiphonate type. Chamber walls even perforated and are formed by hexactine lattic. Chamber interiors are without additional skeleton".

Casearia vezvanensis n. sp. Senowbari-Daryan & Amirhassankhani 2012, Porifera (chambered Hexactinellida) (Rivista Italiana di Paleontologia e Stratigrafia, 118 (2): p. 252, pl. 2, fig. 4, pl. 3, fig. 4, Fig. 4). Nayband Formation, Upper Triassic.

"A cylindrical species of the genus Casearia with low chambers and relatively coarse and loose packed hexactines forming the chamber walls".

Casearia delijanensis n. sp. Senowbari-Daryan & Amirhassankhani 2012, Porifera (chambered Hexactinellida) (Rivista Italiana di Paleontologia e Stratigrafia, 118 (2): p. 252, pl. 2, fig. 1, 2, pl. 3, fig. 1). Nayband Formation, Upper Triassic.
"Cylindrical species of the genus Casearia with thin chamber walls with compact appearance composed of smaller hexactine. A very short ray of hexactines may extend into the chamber interior. The spongocoel wall contains larger openings than in the chamber walls".

Esfahanella magna nov. gen. n. sp. Senowbari-Daryan & Amirhassankhani 2012, Porifera (chambered Hexactinellida) (Rivista Italiana di Paleontologia e Stratigrafia, 118 (2): p. 252, pl. 1, fig. 5). Nayband Formation, Upper Triassic.
"Large species with relatively flatted crescent-shaped ring-chambers arranged around a very wide retrosiphonate spongocoel that passes through the whole sponge…. The chamber walls are composed of a hexactine lattic. Chamber interiors contain loose or amalgamated hexactine needles".

Esfahanella parva n. sp. Senowbari-Daryan & Amirhassankhani 2012, Porifera (chambered Hexactinellida) (Rivista Italiana di Paleontologia e Stratigrafia, 118 (2): p. 252, pl. 2, fig. 3, pl. 4, fig. 1, Fig. 5). Nayband Formation, Upper Triassic.
"Internally and externally well segmented, a small species of the genu Esfahanella. Chamber interior, especially the old chambers contain loose filling skeleton composed of hexactine needles. Chamber walls have numerous pores".

Bryozoa

Diaphragmopora margaritata nov. gen. nov. sp. Schäfer, Senowbari-Daryan & Hamedani 2003 (Facies, 48: p. 140, pl. 26, fig. 1-4). Nayband Formation, Upper Triassic.
"Zonaria massive to ramose with poor distinction between endozone and exozone and irregularly thickened zooecial walls. Budding of autozooecia from basal wall. Autozooecia vertically arranged in endozone, of subcircular to slightly petaloid shape in zoarial cross section.…".

Discritella clausa nov. sp. Schäfer, Senowbari-Daryan & Hamedani 2003 (Facies, 48: p. 142, pl. 26, fig. 5-8). Nayband Formation, Upper Triassic.
"Zoaria columnar. In endozone, zooidal budding pattern noncyclic from zooecial corners; autozooecia semicircular in cross section. Autozooecia gradually bending outward in exozone meeting zoarial surface in 80^{o} angles. In exozone, autozooecial apertures lobate in tangential sections.…"

Gastropoda

Trochonodus iranicus nov. gen. nov. sp. Nützel, Hamedani & Senowbari-Daryan 2003 (Facies, 48: p. 128, pl. 24, fig. 1-4). Nayband Formation, Upper Triassic.
"Trochiform to turbiniform archaeogastrood with an ornament of strong spiral cords and strong to very weak axial ribs with strongly nodular intersections; base flatly convex, anomphalous , with spirals that can be nodular; growth lines (peristome) distinctly prosocline; aperture tangential without tooth".

Cryptaulax? *convexa* nov. sp. Nützel, Hamedani & Senowbari-Daryan 2003 (Facies, 48: p. 130, pl. 24, fig. 8-9). Nayband Formation, Upper Triassic.
"Teleoconch fragment of four whorls. Whorls slowly increasing in diameter, strongly convex with impressed suture; whorls with ornament of about 16 strong, rounded orthocline axial ribs, base round".

Riselloidea naybandensis nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 100, pl. 1, fig.7-9, pl.

7, fig. 4-5). Nayband Formation, Upper Triassic.
„Trochiform shell with a teleoconch sculpture of spirals and axials with nodular to spine-like intersections; two of the spirals (2 and 3) are very close to each other. The whorl-face is covered with numerous fine spiral threads”.

Riselloidea aliabadensis nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 101, pl. 1, fig.10-11, pl. 7, fig. 1-3). Nayband Formation, Upper Triassic.
„Trochiform shell with a teleoconch ornament of spirals and weak axials with nodular intersections; three spirals are fully visible on the whorl-face, a fourth emerges at the abapical suture. The two adaptical spirals are a little closer to each other”.

Yannania spinosa nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 102, pl. 2, fig.1-4). Nayband Formation, Upper Triassic.
„Middle-sized anomphalos, turbiniform gastropods; the teleoconch has an ornament of prominent spirals some of which have sine-like protrusions. The growth-lines are thread-like”.

Eucycloscala epitoniformis nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 103, pl. 2, fig. 5-7). Nayband Formation, Upper Triassic.
„Turbiniform gastropod with convex teleoconch whorls that are sculptured with coarse prosocline axial ribs and fine spiral threads”.

Ampezzalina angulata nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 104, pl. 2, fig. 8-11). Nayband Formation, Upper Triassic.
„Species of the genus Ampezzalina with a broad, relatively shallow subsutural ramp which has an ornament of growth-lines only. The abapical portion of the whorls has initially an ornament of three spirals; later the two abapical spirals unite”.

Runchocerithium douglasi nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 108, pl. 3, fig. 11-13, pl. 4, fig. 1). Nayband Formation, Upper Triassic.
„The shell is turbiniform. The holotype comprises approximately 5.5 whorls. The largest specimen is 9 mm high and 5 mm wide. The teleoconch has ornament of spirals and axials. The spirals are narrow and early of equal strength”.

Xystrella inaequelineata nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 110, pl. 4, fig. 2-4). Nayband Formation, Upper Triassic.
„High-spired shells with a reticulate teleoconch ornament with spine-like to knobby intersections. The distance between the two adapical spirals is smaller than the distance between the other spirals”.

Zygopleura? *seminodosa* nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 113, pl. 4, fig. 4-5). Nayband Formation Upper Triassic,.
„High-spired shells with axially elongated rib-like nodes that are restricted to the abapical half of the whorl”.

Toxoconcha microfurcata nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 121, pl. 6, fig. 1-4, pl. 7, fig. 8-9, pl. 8, fig. 8). Nayband Formation, Upper Triassic.
„High-spired slightly cyrtoconoid caenogastropod with more or less equally spaced distinct furrows on the teleoconch whorls, spiral striation on the base and a weak columellar fold low on the whorl. The columella is not completely solid, especially in the early whorls”.

Spirostylus subulitoides nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 121, pl. 6, fig. 6). Nayband Formation, Upper Triassic.
„Spirostylid with very high whorls which cover large part of each other”.

Promathildia? *textilis* nov. sp. Nützel & Senowbari-Daryan 1999 (Beringeria, 23: p. 126, pl. 6, fig. 11, 12?). Nayband Formation, Upper Triassic.
„High-spired shells with a distinct spiral keel below the mid-whorl. The teleoconch has a reticulate ornament of fine spiral and axial threads".

Cryptaulay? *hautmanni* nov. sp. Nützel, Mannani & Senowbari-Daryan 2009 (Neues Jahrbuch Geologie Paläontologie, Abh., 256(2): p. 224, fig. 7.2). Nayband Formation, Upper Triassic.
„Turruculate crytaulax species with ornament of two spiral ribs and weaker axial ribs; whorl profile with submedian angulation that bears strong, nodes; a row of smaller and more numerous nodes in subsutural position".

Rhynchoceritium esfahanense nov. sp. Nützel, Mannani & Senowbari-Daryan 2009 (Neues Jahrbuch Geologie Paläontologie, Abh., 256(2): p. 224, fig. 7.5). Nayband Formation, Upper Triassic.
"Small, relatively slender Rhynchocerithium species with five spiral ribs on whorl faces crossed by straight axial ribs; axial ribs do no continue onto base; base with prominent spiral ribs and minutely planeromphalous".

Acilia? *basistriata* sp. nov. Nützel, Aghababalou & Senowbari-Daryan 2012 (Bulletin of Geosiences, 87(1): p. 55, fig. 3B). Nayband Formation, Upper Triassic.
"Conical to turbiniform shell; whorls convex; whorl face smooth; sutures deeply incised; base distinctly convex, evenly rounded when joining whorl face; base covered with five very strong spiral ribs and weaker spiral ribs between thin spirals; aperture oblique oval".

Teutonica? *natanzensis* sp. nov. Nützel, Aghababalou & Senowbari-Daryan 2012 (Bulletin of Geosiences, 87(1): p. 58, figs. 2A, 3H-J). Nayband Formation, Upper Triassic.
"Small, high-spired, slender shell with numerous low whorls; whorls ornamented with axial ribs which form two spiral rows of axially elongated nodes; upper row of nodes stronger than lower one, situated ar mid-whorl forming angular periphery of whorls; lower row nodes weaker, situated between abapical suture and upper row of nodes; a third row of relatively weak nodes is present in subsutural position of nature whorls".

Protorcula iranica sp. nov. Nützel, Aghababalou & Senowbari-Daryan 2012 (Bulletin of Geosiences, 87(1): p. 59, Figs. 4A-M). Nayband Formation, Upper Triassic.
"High-spired medium-sized shell with straight flanks; whorl face variable from distinctly concave tostraight or slightly convex; transition to base angular, formed by rounded edge which forms a bulge that is rarely somewhat nodular; basal edge directly at abapical suture or somewhat above forming suprasutural angulation; …"

Foraminifera

Trocholina blaui nov. sp. Senowbari-Daryan, Rashidi & Torabi 2010, (Facies, 56: p. 572, fig. 6a-j, 7a-q, 8, 9). Nayband Formation, Upper Triassic.
"Test-flattened conical, first chamber (proloculus) not known; second chamber tubular and trochospirally enrolled; 4-5 (6?) whorls; large aperture at the end of the tubular chamber. All whorls are recognizable from the outer surface of the test".

Coronipora serraforma nov. sp. Senowbari-Daryan, Rashidi & Torabi 2010, (Facies, 56: p. 582, fig. 14n-r, 16). Nayband Formation, Upper Triassic.
"Test free, planspirally to weakly trochospirally coiled. One side of the test shows a saw-like ornamentation and is not thickened. The other side is thickened by the extension of the test. At least five deuteroloculus whorls. Ontline of deuteroloculus crescent-like to quadratic".

Spirillina? *iranica* nov. sp. Senowbari-Daryan, Rashidi & Torabi 2010, (Facies, 56: p.585, fig. 6x-y, 14d/2, s-

v, 17c-t). Nayband Formation, Upper Triassic.
"Test free, small proloculus, tubular deuteroloculus planspirally coiled. The diameter of the test increases gradually. Both sides of the test are usually concave, rarelyflat, and moderately thickened. Crescent-like to semicircle outline of the deuteroloculus".

Algae
Green algae (Dasycladales)

Diplopora iranica nov. sp. Senowbari-Daryan & Hamedani 2000 (Revue Paléobiologie Genève, 19/1: p. 106, pl. 1, fig. 2B, pl. 2, fig. 1-13, pl. 3, fig. 1, pl. 4, fig. 1-8, pl. 5, fig. 1-4, text-fig. 4). Nayband Formation, Upper Triassic.
"Cylindrical thallus, metasondyl arrangement of the laterals. The reproductive organs (cysts or sporangia) are arranged in row within the axial stem and parallel to the axis. The wall of sporangia appears dark in transmitted light".
Griphoporella lutensis nov. sp. Senowbari-Daryan, Rashidi & Saberzadeh 2001 (Geologica Carpathica, 62/6: p. 501-51, pl. 1, fig. J-N, pl. 7, fig. G-H, text-fig. 6). Nayband Formation, Upper Triassic.
"Cylindrical, possibly club-shaped alga with extremely wide central stem and thin thallus wall with modest extension of laterals. Single laterals are distributed equally through the thallus wall. Euspondyl arrangement of the laterals".

Red algae (Soleonoraceans)

Solenopora rectangulata nov. sp. Senowbari-Daryan, Torabi & Rashidi, 2008 (Geologia Croatia, 61/2-3: p. 137, fig. 3-5, pl. 2, fig. a-b, pl. 3, fig. a-b, pl. 4, fig. a-c, pl. 5, fig. a-e, pl. 6, fig. a-e). Nayband Formation, Upper Triassic.
"Erect, slender and multi-branched, antler- or fir-tree-like thallus. Several branches may radiate outward from the same level on the main stem and when viewed from above the angle between the branches varies from 30 to 90 degrees. The net-like appearance of the thalli in side view can be recognized in the field and in thin-section. …..".

Parqachaetetes dizluensis Senowbari-Daryan, Torabi & Rashidi, 2008 (Geologia Croatia, 61/2-3: p. 151, fig. 6-7, pl. 2, fig. a-b, pl. 7, fig. a-c, pl. 8, fig. a-c). Nayband Formation, Upper Triassic.
"Erect and finger-like multi-branched thallus with a diameter up to 8 mm (at branching points up to 16 mm). Cells are oriented in the middle part of the thallus parallel to the axis, but toward the periphery of the thallus they diverge at an angle of 30º-90º. Concentric layers about 0.1 mm apart are produced by the thickening of the cell walls at the same height….".

Problematicum (Foraminifera?)

Tabasosphaera pustulosa nov. gen. nov. sp. Senowbari-Daryan 2004 (Studia Univer. Babes-Bolyai, Geologia 49/2: p. 87, pl. 1, fig. 1-3, pl. 2, fig. 1-4, text-fig. 2). Nayband Formation, Upper Triassic.
"Hollow spherical to egg-shaped test of approximately 1 mm in diameter with numerous pustule-like protuberances on the outer surface. Thin wall, originally composed of aragonite or calcite, but presently preserved as calcite. Interior of the test is usually filled with calcite cement".

Jurassic

Sponges
(Calcispongea)

Mammillopora iranica n. sp. Senowbari-Daryan, Fürsich & Rashidi, 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/3: p. 426, pl. 1, figs. A-H, pl. 2, figs. A-E, pl. 6, figs. D-E, pl. 11, fig. A). Oxfordian-

Kimmeridgian.
"Hemispherical to irregular sponge with concentrically wrinkled imperforate layer of the basal part. Upper and side surface covered with several nipple-like protuberances. Each nipple recognizable at the top, but laterally they are grown together. Each nipple with an osculum at the top. Coarse fibre skeleton with honey-comb appearance".

Mammillopora polyosculata n. sp. Senowbari-Daryan, Fürsich & Rashidi, 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/3: p. 429, pl. 3, figs. A-F, pl. 4, figs. A-F). Callovian-Oxfordian.
"Bun-shaped, hemispherical to irregularly hemispherical sponge with protuberances on the upper suface. Each protuberance bears several osculi at its top. The spaces between the protuberances are filled with reticulate skeletal fibres".

Tremospongia pellisfera n. sp. Senowbari-Daryan, Fürsich & Rashidi, 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/3: p. 431-432, pl. 6, figs. A-C). Callovian-Oxfordian.
"Hemispherical to mushroom-shaped sponge with concentrically wrinkled and imperforate dermal layer at the base. Upper surface with numerous weakly developed protuberances. Each protuberance bearing an exhalant canal bundle composed of several (usually 8) individual and pear-shaped osculi arranged radially around a pillar-shaped element in the center. The flanks of the protuberances are covered with an imperforate dermal layer".

Dehukia maxima n. gen., n. sp. Senowbari-Daryan, Fürsich & Rashidi, 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/3: p. 435, pl. 7, figs. A-D). Callovian-Oxfordian.
„Large, bun-shaped to irregularly spherical sponge with irregularly folded wall. Between the folded walls there are deep grooves. With numerous osculi on the top of the walls continuing as tubes the sponge skeleton. Outer surface composed of fibre skeleton of the reticulate type. Microstructure and spicules not known.

Dehukia raisossadati n. sp. Senowbari-Daryan, Fürsich & Rashidi, 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/3: p. 437, pl. 8, figs. A, C, D, F). Callovian-Oxfordian.
"Irregularly bun-shaped, folded sponge. Large groove-like depressions are surrounded by the folded sponge wall. The top of the wall carries numerous small osculi. The outer wall of the sponge is composed of reticulate fibre skeleton".

Dehukia media n. sp. Senowbari-Daryan, Fürsich & Rashidi, 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/3: p. 437, pl. 8, figs. B, E). Oxfordian.
„Irregularly folded sponge. Large, irregular, groove-like depressions are surrounded by the folded wall of sponge. The top of the thick wall carries numerous, relatively large osculi. The sponge is composed of skeletal fibres of the reticulate type".

Enaulofungia sphaerica n. sp. Senowbari-Daryan, Fürsich & Rashidi, 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/3: p. 448, pl. 12, figs. B-d). Callovian- Oxfordian.
„Small globular sponge without recognizable surface of attachment. With radiating grooves covering the top of the sponge. The grooves extend downwards and disappear at about the equator of the sphere. Grooves and ribs are covered with pores between the skeletal fibres".

Porosphaera regularis n. sp. Senowbari-Daryan, Fürsich & Wilmsen 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117/ 3: p. 454, pl. 1, figs. A, D, G., pl. 4, figs. C-D, pl. 5, figs. A-B). Callovian to Kimmeridgian.
"Small spherical sponge with uniform perforation of the skeletal surface. The evenly sized tubes radiate from the centre to the outside, ending as ores on the skeletal surface. The wall between the tubes perforated. Spicules were not observed".

Porosphaera biporata n. sp. Senowbari-Daryan, Fürsich & Wilmsen 2011 (Rivista Italiana di Paleontologia e Stratigrafia, 117 (3): p. 454, pl. 2, figs. A-F, pl. 4, figs. A-B, F) (Bathonian-Callovian).

"Spherical sponge without distinct attachment area. Surface of the sponge covered with pores of two different sizes. Both types of pores are the openings of internal canals, which run from the surface to the centre of the sponge. Sicules were not observed".

Porosphaera? *labyrinthica* n. sp. Senowbari-Daryan, Fürsich & Wilmsen 2011 (Rivista di Italiana Paleontologia e Stratigrafia, 117/3: p. 454, pl. 3, figs. A-F, pl. 5, fig. C). Callovian to Kimmeridgian.
"Small spherical, ovoid to flattened sponge with labyrinth-like structured surface consisting of grooves and ribs. Small pores are located in the grooves, ribs are without or with only very rare pores…. Pores of the surface extend as tubes into the sphere centre. Spicules were not observed".

Porosphaera? *asymmetrica* n. sp. Senowbari-Daryan, Fürsich & Wilmsen 2011 (Rivista di Italiana Paleontologia e Stratigrafia, 117/3: p. 458, pl. 1, figs. B-C, pl. 4, fig. E5, D). Bathonian-Callovian.
"Spherical to hemispherical sponge, flattened or with a slit on one side. Surface of the sponge, structures of the internal tubes, and the wall between them are similar to P. regularis. The tubes originate from the "base" and diverge toward of the sponge surface".

Hexactinellida

Casearia tabasensis n. sp. Senowbari-Daryan & Fürsich 2013, (Rivista Italiana di Paleontologia e Stratigrafia, 119/2: p. 186, pl.1, figs. a-e, pl. 2, figs. e-h). Callovian.
"Small species of Csearia with ring-like chambers arranged around the axial spongocoel. Spongocoel of retrosiphonate type. Chamber walls thin and composed of two or several layers of hexactine lattic. Outer surface covered with hexactine spicules. Pores between hexactine lattic of the dermal layer circular, rarely irregularly polygonal".

Cypellia irregularis n. sp. Senowbari-Daryan & Fürsich 2013, (Rivista Italiana di Paleontologia e Stratigrafia, 119/2: p. 187, pl. 3, figs. d-g, pl. 5, figs. a, d, f-g). Callovian.
"Hexactine sponge composed of numerous ring-shaped, half-ring-shaped or wedge-shaped members. Internally non-chambered. A wide spongocoel passes internally through the whole sponge. Sponge wall is thick. The thin outer dermal layer builds by hexactine and intervening pores".

Cypellia cylindrica n. sp. Senowbari-Daryan & Fürsich 2013, (Rivista Italiana di Paleontologia e Stratigrafia, 119/2: p. 188, pl. 3, figs. a-c, pl. 5, figs. b-c, e). Callovian.
"Well and deeply annulated cylindrical sponge with ring-shaped segments. Internally non-chambered. The thick sponge wall is composed of irregularly arranged hexactines. Inhalant oe exhalant tubes may occur within the sponge wall. Sponge surface covered with finely perforated and thin dermal layer. Spongocoel wide".

Cypellia tabulata n. sp. Senowbari-Daryan & Fürsich 2013, (Rivista Italiana di Paleontologia e Stratigrafia, 119/2: p. 188, pl. 4, figs. a-d). Callovian.
"Externally deep annulated and internally non-chambered hexactinellid sponge. Outer dermal layer thin and composed of a hexactine lattic….The thick sponge wall is composed of hexactines. Inhalant and exhalant canals occur within the wall. Wide spongocoel passes internally through the sponge…..".

Cretaceous

Algae

Pseudoactinoorella? *Iranica* n. sp. Bucur, Rashidi & Senowbari-Daryan 2012 (Facies, 58: p. 609, fig. 5a-jl9). Taft Formation, Barremian? - Lower Aptian.
"Relatively large dasycladalean alga with long, phoiophorous-type laterals. In their proximal area, they contain a small lower protuberance (globular extension). The laterals are slightly compressed and show typical "chess pawn" features in deep tangential section….".

Holosporella farsica n. sp. Bucur, Rashidi & Senowbari-Daryan 2012 (Facies, 58: p. 613, fig. 6j-n). Taft Formation, Barremian? - Lower Aptian.
"Cylindrical with a relatively large axial cavity. Laterals arranged in alternating, close set-up verticals. Shape of laterals is ovoidal (ellipsoidal), and they are connected directly to the axial cavity through a small pore…..".

Boueina minima n. sp. Bucur, Rashidi & Senowbari-Daryan 2012 (Facies, 58: p. 625, fig. 13f, I, l, m, o). Taft Formation, Barremian? - Lower Aptian.
"Small udoteacean alga. Medullary zone consisting of relatively wide, slightly braided filaments with longitudinal arrangement. As a role, this zone is poorly calcified, thus the medullary filaments either show an advanced degree of micritization or they are not calcified….".