

A New Doubtful Microfossil from Pyrite Deposit at Amjhore Bijaigarh Shale, (Upper Mesoproterozoic) Vindhyan Supergroup, India. K.L.Shrivastava, Virendra Gaur, Shinju Sathyadeva and C.P.Khichi, Department of Geology, Jai Nararin Vyas University, Jodhpur, 342005 India. (E: klsgeology@yahoo.co.in)

The Precambrian, thought in the beginning to be devoid of fossils, soon yielded diverse evidences of life that existed during this Eon. The Vindhyan Supergroup, has been an issue of global debate for its discordant 'radiometric-' and 'paleontological'- ages throughout the stratigraphic horizons. We are reporting a doubtful microfossil, which was identified during the course of ore microscopic study of pyrite recovered from the pyrite mine at Amjhore, Bihar, India. The host horizon of the sample is a massive pyrite bed, almost one meter thick, embedded in carbonaceous shale of Bijaigarh Shale Formation of Kaimur Group. The Kaimur Group is lower most group of the Upper Vindhyan Supergroup. The microfossil (?) is fully pyritized. In fact, pyrite as a mineral, always shows a prompt habit to fill the organic sacs or any other similar structure available in the geological environments. It seems important that the microfossil (?) in question, possibly belong to the upper part of the Mesoproterozoic time.

The microfossil (?) in polished section (Fig 1; A and B) is showing a circular structure (diameter almost of 5 μ), the outer- and inner walls of which are filled mainly with the organic matter, while the intermediate space is filled with the unconsolidated pyrite granules or/and microcysts. The outer wall shows wavy structure. These waves possibly have a fixed wave length. The microfossil (?) which is compressed in the left side show that the regularity of the wavy pattern have also been modified because of compression. In this two dimensional view of the microfossil (?) there is one opening or aperture of almost rectangular shape. The aperture is without any collar. The size and circular shape of the microfossil (?) favours it being a microfossil. The presence of a doubtful aperture or opening and clearly available double wall structure is further giving strength to the possibility. The structure is totally pyritized and embedded in poorly compacted pyrite mass, which is having many microcysts and microgranules of pyrite. The filling of pyrite inside the walls of the organism (?) is greatly compact and well crystallized.

Specially, in the last two decades, the Vindhyan attracted world-scientists to study the earth's 'early-life' as well as fixing the 'biostratigraphic position' of its 9000 m thick sequence (Rao and Neelkantam, 1978, Prasad and Verma, 1991) that assumed to have crossed 1400 to 550 Ma time – span radiometrically (Kathal and Patel, 2015). Sharma (2003) reviewed the age of the Vindhyan based only on the 'paleontological data'. Azmi et al. (2007), however, reviewed the age of Vindhyan of the central India, highlighting the inconsistency in 'radiometric-' vs 'fossil-records' also by providing a table with extensive details.

Sharma and Kumar (2012) provided a 'Bibliography' on the Vindhyan with 'excessive comments' on the status of fossils recovered till then. The K-Ar age of the phlogopite of the Majhgawan pipe is 1140 \pm 112 Ma (Paul et al. 1975). The Rb-Sr isochron age of lamproite body is 1067.31 Ma (Anil Kumar et al. 1993). Intrusion of the kimberlite pipe in the Rewa group (Middle group of Upper Vindhyan) shows that the Upper Vindhyan succession must have been started before 1100 Ma. With extensive discussions, Valdiya (2010) concluded that the lower part of the Upper Vindhyan succession possibly extends down into the Upper Mesoproterozoic. As the present microfossil (?) is part of the Bijaigarh Shale, a middle member of the Kaimur Group, which itself is lower part of the Upper Vindhyan Supergroup; the

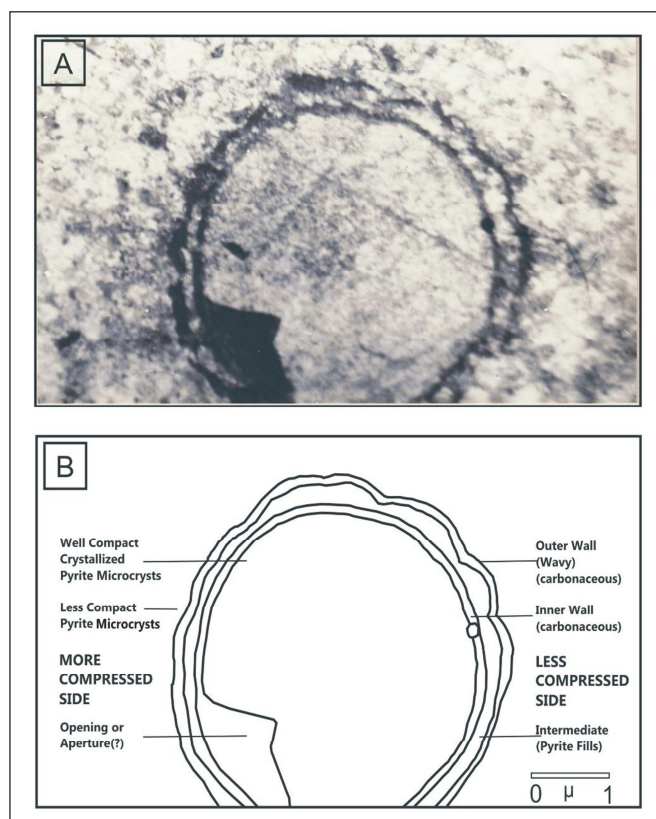


Fig.1. (A) A pyritized (?) microfossil in Polished Section. (B) Line-diagram showing details of the wall of the microfossil (?).

present status of knowledge states that the microfossil (?) seems to have an age older than 1100 Ma.

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