

## **Biostratigraphic Significance of *Shaanxilithes ningqiangensis* from the Tal Group (Cambrian), Nigalidhar Syncline, Lesser Himalaya, India and Its GC-MS Analysis**

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**Abstract :** We recovered 40 well preserved ribbon-shaped, meandering specimens of *S. ningqiangensis* from the Earthy Dolomite Member (Krol Group) and calcareous siltstone beds of the Earthy Siltstone Member (Tal Group) showing closely spaced annulations that lacked branching. The beginning and terminal points are indistinguishable. In certain cases, individual specimens are characterized by irregular, low-angle to high-angle sinuosity. It has been variously described as body fossil, ichnofossil and algae. Detailed study of this enigmatic fossil is needed to resolve the long standing controversy regarding its phylogenetic and stratigraphic placements, which will be an important contribution to the evolutionary history of metazoans. *S. ningqiangensis* has been known from the late Neoproterozoic (Ediacaran) of southern and central China (Sichuan, Shaanxi, Qinghai and Guizhou provinces and Ningxia Hui Autonomous region), Siberian platform and across Pc/C Boundary from latest Neoproterozoic to earliest Cambrian of northern India. *Shaanxilithes* is considered an Ediacaran organism that spans the Precambrian–Cambrian boundary, an interval marked by significant taphonomic and ecological transformations that include not only innovation but also probable extinction. All the past well constrained finds of *S. ningqiangensis* are restricted to Ediacaran age. However, due to the new recoveries of the fossil from Nigalidhar Syncline, the stratigraphic status of *S. ningqiangensis*-bearing Earthy Siltstone Member of the Shaliyan Formation of the Tal Group (Cambrian) is rendered uncertain, though the overlying Chert Member in the adjoining Korgai Syncline has yielded definite early Cambrian acritarchs. The moot question is whether the Earthy Siltstone Member represents an Ediacaran or an early Cambrian age?. It would be interesting to find if *Shaanxilithes*, so far known from Ediacaran sequences, could it transgress to the early Cambrian or in simple words could it withstand the Pc/C Boundary event? GC-MS data shows the *S. ningqiangensis* structure is formed by hydrocarbon organic compounds which are filled with inorganic elements filler like silica, Calcium, phosphorus etc. The *S. ningqiangensis* structure is a mixture of organic compounds of high molecular weight, containing several saturated rings with hydrocarbon chains having an occasional isolated carbon-carbon double bond and also containing, in addition, to small amounts of nitrogen, sulfur and oxygen. Data also revealed that the presence of nitrogen which would be either in the form of peptide chains means amide/amine or chemical form i.e. nitrates/nitrites etc. The formula weight and the weight ratio of C/H shows that it would be expected for algae derived organics, since algae produce fatty acids as well as other hydrocarbons such as carotenoids.

**Keywords :** GC-MS Analysis, lesser himalaya, Pc/C Boundary, shaanxilithes

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