

A report of *Sulcolithos variabilis* trace-fossils in India

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The burrowing or boring traces of polychaetes ascribed to *Sulcolithos variabilis* have been recorded in the Fort Member of the Jaisalmer Formation, Jaisalmer Basin, exposed near the Jethwai village area of Jaisalmer district, western Rajasthan, India. These traces are superficial and occur on firm calcareous grounds of yellowish medium- to fine-grained calcareous sandstone of the Fort Member as elongated, straight, or curved grooves, such as burrows or borings. They are mostly found with rounded ends, but sometimes these grooves are tapered at both ends. The *Sulcolithos variabilis* grooves range from 42 to 92 mm in length, 4 to 6 mm in width and 3 to 6 mm in depth. These trace-fossils in the Fort Member of the Jaisalmer Formation are interpreted as combined burrowing and boring behaviour traces, probably produced by polychaete worms. However, no *in situ* remains of polychaete worms have been found yet in the presently identified *Sulcolithos variabilis* grooves. This report represents the first documented instance of *Sulcolithos variabilis* burrowing and/or boring in India.

Keywords: Burrowing or boring traces, Fort Member, Jaisalmer Basin, Jaisalmer Formation, polychaetes, *Sulcolithos variabilis*, western Rajasthan.

Jethwai Section are located about 8 km from Jaisalmer city on the Jaisalmer-Kanod road (Figure 1). The one slab of yellowish medium- to fine-grained calcareous sandstone containing *Sulcolithos variabilis* grooves (FM/JF/JP/TF-439) is housed in our Palaeontological Laboratory at the Department of Geology, Jai Narain Vyas University, Jodhpur, western Rajasthan. The purpose of the present paper is (i) to report *Sulcolithos variabilis*¹⁸ trace-fossils for the first time from India; (ii) to provide a detailed description and identify the possible trace-markers of *Sulcolithos variabilis* burrowing or boring traces and (iii) to interpret the palaeoenvironments of the fossil-bearing horizon of the Fort Member.

Geological settings

The calcareous firm-ground strata containing several *Sulcolithos variabilis* specimens belong to the Fort Member of the Jaisalmer Formation. The Fort Member is exposed in the Jaisalmer Fort area in Jaisalmer city (Gafur Bhatta), Dedansar and near Jethwai villages^{4,19}. The Jaisalmer Formation was first referred to as the "Jaisalmer Limestone"²⁰, and the current name Jaisalmer Formation was given by Swaminathan²¹. The Jaisalmer Formation is exposed in the