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The Quilon Limestone (Kerala Basin/India) – an archive for Miocene Indo-Pacific seagrass beds

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The Quilon Formation of the Kerala Basin (SW India) is characterized by carbonate rocks which belong to the Warkalli Group and are interbedded between siliciclastic formations. It comprises at least 2 horizons of fossiliferous limestone with marine fauna. The lower limestone horizon is characterized by colonial corals, while the upper horizon represents a larger foraminiferal Pseudotaberina malabarica facies which is well developed at the type locality, the coastal cliffs of Ashtamudi Lake at Padappakkara in SW India. The sediment there is either a weakly cemented carbonate sand rich in foraminifers and gastropods or a fossiliferous limestone. Facies and faunal composition clearly indicate a seagrass environment.
Recent seagrasses have their centre of generic richness in the Indo-Pacific where they cover wide areas in the tidal and shallow subtidal zones. However, their geological record is only fragmentary and their palaeobiogeographic record has a big gap in the Western Indo-Pacific region. The newly reported nannoplankton flora and planktonic foraminifers from the Quilon Formation demonstrate that the deposition of the studied seagrass bed occurred in nannoplankton biozone NN3. This timing suggests a formation during the closure of the Tethyan Seaway. It designates the Quilon Limestone as an early Western Indo-Pacific seagrass bed and documents an important step in the history of seagrass communities. The large discoidal soritid foraminifer Pseudotaberina malabarica is considered as proxy for Miocene seagrass communities in the Indo-Pacific region.