We describe a new species of the unusual crinoid *Tiaracrinus*, *T. jeanollemenni* sp. nov. from the latest Emsian of the famous mudmound locality Hamar Laghdad, Morocco. It differs from the previously known species in the higher number of ribs and the vaulted rib-fields, which is corroborated by the comparison of simple quantitative characters and ratios as well as by the results of a cluster analysis and a Principal Component Analysis. Based on the new material and the published specimens, we discuss the phylogeny of the genus and suggest that *T. oehlerti* and *T. moravicus* represent the ancestral forms of this small clade.

**Key words:** Crinoidea, mudmounds, phylogeny, morphometry, symmetry, Devonian, Morocco.

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