



ICG2022-729, updated on 28 May 2023

<https://doi.org/10.5194/icg2022-729>

10th International Conference on Geomorphology

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The contribution of Neoproterozoic stromatolite buildups for the carbonate framework and karstic morphology of the Humpata plateau (SW Angola)

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The Humpata plateau is located in the Huíla province of SW Angola, west of Lubango. It extends over a large area of 1242.8 km² with elevation ranging from 1800 m to nearly 2500 m in its northern side. The plateau is slightly tilted southward and it is bounded along its western side by the Leba escarpment, one of the world's largest of its kind. Showing a step higher than 600 m in many points, it allows a continuous line of noteworthy landscapes with several monumental inselberg reliefs developed from the granitic basement.

This wide geomorphological unit evolved during late Mesozoic and Cenozoic times, conditioned by the epeirogenic uplift and differential erosion of non-deformed Proterozoic units of the Chela Group, which is recorded by a several hundred meters thick succession of quartzite and interbedded volcano sedimentary rocks. At the top of alluvial siliciclastic units, a wide range transgressive event is marked by the occurrence of fine, arkosic sandstones interbedded with finely laminated reddish lutites, locally cut by doleritic sills and overlain by nearly 80 m of highly fossiliferous shallow marine, cherty dolostones.

The genesis of this exceptional Neoproterozoic carbonate unit, the Leba Fm., was made possible due to the settlement of a shallow, intertidal to upper infralittoral palaeoenvironment dominated by the widespread blue-green, prokaryotic, algal mats. During a large time-interval of high sea-level, these cyanobacteria produced abundant stromatolite microbialites, which significantly contributed to the carbonate framework, and to the biogenic build-up of the carbonated beds.

The studied sector lies between the Humpata, Forno da Cal and Leba restaurant viewpoint, south of the Leba River and the national road 280 to the coastal ranges of Namibe (former Moçamedes). Around Forno da Cal, the cherty dolostone beds are rich in finely laminated stromatolite mounds assigned to genus *Collenia*, decimetre thick and frequently coalescent. They contribute to the compact facies of the carbonate succession, which is exposed through an alignment of small escarpments, corresponding to the front slopes of slightly tilted cuestas.

Here, the karstic evolution of the carbonate massif under the high altitude, temperate climatic conditions of this African plateau sector, can be noted through a network of caves with diverse speleothems. They lie below a surface scattered by *lapias* blocks, sometimes several meters in height, and sinkholes with *terra rossa* soils and laterites masked by a dense vegetation cover with frequent introduced *Opuntia* cactus.

Keywords: Leba (Angola), *Collenia*, cherty dolostones, Leba Fm., karstic landforms