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Taxonomic remarks and stratigraphic implications of *Cloudina* species in Neoproterozoic strata

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The Tamengo Formation is mainly composed of dark, organic rich limestones and marls with occasional *Cloudina* [1; 2; 7;]. The *Cloudina* genus is represented by seven species restricted to the uppermost Ediacaran strata: 1. *Cloudina luciano*i (Beurlen & Sommer, 1957) (Tamengo Formation, Brazil), 2. *Cloudina hartmannae* Germs, 1972 (Nama Group, Namibia), 3. *Cloudina riemkae* Germs, 1972 (Nama Group, Namibia), 4. *Cloudina waldei* Hann & Pflug, 1985 (Tamengo Formation, Brazil), 5. *Cloudina lijiagouensis* Zhang, Li & Dong, 1992 (Denging Formation, China), 6. *Cloudina sinensis* Zhang, Li & Dong, 1992 (Denging Formation, China), 7. *Cloudina carinata* Cortijo *et al.*, 2010 (Membrillar olistostrome, Spain). Herein is presented an update concept about two species of *Cloudina*, their occurrences and respective stratigraphic distribution discussing a possible synonymy: *C. hartmannae* and the *C. luciano*i. The occurrences of *Cloudina luciano*i in the Tamengo Formation and *Cloudina hartmannae* in the Nama Group are discussed herein under evolutive aspect, in order to clarify the taxonomic concept and discuss a correlation between Ediacaran strata.

Despite the existence of the seven valid species of *Cloudina*, most publications are addressing occurrences of this genus does not reach the specific classification, restricting only the designation *Cloudina* sp. or just *Cloudina*. In the Tamengo Formation the *Cloudina* occurrences have been attributed to *Cloudina luciano*i (Beurlen & Sommer, 1957) and *Cloudina waldei* Hann & Pflug, 1985. This second species, *Cloudina waldei* is lacking cone-in-cone structure so, it deserves to be replaced for other genus. *Cloudina hartmannae* is herein considered to be junior synonyms of *Cloudina luciano*i. They share with the valid species, size, shape, outline and, additionally, stratigraphic distribution restricted to the upper Ediacaran. Size and position of superposition of the cone-in-cone exoskeleton structure differs *Cloudina luciano*i of *Cloudina riemkae* and *Cloudina carinata*. In these two last species, the superposition of cone-in-cone structure is restricted to the upper portion of each nested cone. On considering comparison with the two species from China, *Cloudina lijiagouensis* and *Cloudina sinensis*, both species are under revision by colleagues from China.

The detailed review of *Cloudina hartmannae* in progress shows that this species is a junior synonym of *Cloudina luciano*i. This new concept leads to admit that *Cloudina luciano*i was a cosmopolitan species, with occurrences confirmed in Namibia, South Africa, USA, Mexico, Brazil, Paraguay, Siberia and China and possible in Uruguay, Oman, Canada and Spain.

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