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Middle Ordovician La Cristalina Formation: After 50 years new fossil localities were found, including the first Ordovician foraminifera in Colombia

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La Cristalina Formation is a low grade metasedimentary unit that conserves its sedimentary characteristics. It crops out on the eastern flank of the Central Cordillera of Colombia, in northwestern South America. The unit includes an epicontinental marine sequence that varies from offshore to distal shoreface [1].

Dapingian graptolites were previously reported in La Cristalina [e.g. 4], but those of Darriwilian Age have been found for the first time in an outcrop of metamudstones, southeast of the La Cristalina Railway Station (Puerto Berrío town). Fossils include *Didymograptus* gr. *murchisoni*, *Cryptograptus* cf. *schaeferi* and an undetermined Diplogratidae. Of special note, these strata have yielded the oldest occurrence of Ordovician agglutinated foraminifera in Colombia; specimens are identified as *Astrorhiza* ssp. The foraminifera-bearing rocks are highly bioturbed metamudstones. The foraminifera are not useful biostratigraphically because of their long stratigraphic range (Ordovician-present), in contrast to the graptolites. However, considering foraminifera were an emerging group in the Ordovician, their occurrence in Colombia seems is of international interest, being of especially significance for South America, where very few occurrences have been reported until now [5].

The La Cristalina Formation can now be considered Dapingian to Darriwilian in age, thus representing most of the Middle Ordovician epoch. That is the highest resolution correlation that the La Cristalina has ever had. It can now be correlated in Colombia with the coeval El Hígado Formation, which occurs in the Upper Magdalena Valley further to the south. The graptolites of the La Cristalina and El Hígado formations are very similar to those reported from Perú and Bolivia [3], and both formations likely were deposited on the western margin of Gondwana in interconnected Andean basins.

This new fossil occurrence encourages us to continue searching for and studying outcrops of these poorly known Colombian Ordovician rocks. These occurrences are valuable for regional tectonostratigraphic reconstructions that are challenging to interpret (e.g. [2], [6], [7]) because of significant terrane displacement that has occurred in west Gondwana since the Ordovician times, and because of the deformational grades of the Ordovician metasedimentary rocks.

References:

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