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Role of pro-thrombolites in the geomorphology of a coastal lagoon

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Thrombolites are lithified biosedimentary structures generated by entrapment, precipitation, and binding of sediments promoted by growth and metabolic activity of cyanobacteria. Beaches of the coastal lagoon known as Ensenada de La Paz in Baja California Sur, México, are bordered by sedimentary formations of cyanobacterial origin identified as pro-thrombolites (incipient thrombolites) that represent a first record for the region and México. Observed thrombolithic structures show grains of varied sizes embedded within a fine-grain micritic matrix, which may be surrounded by medium-grain cementing micrite. Different degrees of consolidation occur—some crumble easily, whereas others require some manual force to break. These pro-thrombolites consist of platforms >20 cm thick and/or fragments of assorted sizes and forms. In some cases the structures have lithified, forming rocky plates (thrombolites). The extension and wide distribution of pro-thrombolites around the La Paz lagoon suggests that these structures could have determined its evolution from an original (primitive) cove into a lagoon. That is, the formation of prothrombolites through the entrapment and binding of sediments may have eventually altered water circulation, promoting sand sedimentation causing the formation of the El Mogote sand bar. Likewise, pro-thrombolites may have formed large extensions of headlands through accretion. Thus, several square kilometers of populated land around the La Paz lagoon may have thrombolithic origin

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