# Controls of Tufa development in Bonito Region - Brazil

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Recent discoveries of oil in microbial carbonate rocks have directed studies into tufas and travertines because of their great similarities with the reservoir rocks of the Aptian Pre-Salt. Tufas are continental carbonate rocks precipitated from a bicarbonate fluid at environment temperature. The genesis of tufas is related to physical, chemical, and biological processes. Here, samples of tufas belong to the Serra da Bodoquena Formation - Bonito, Brazil were examined with purpose to understand the chemical conditions of the depositional environment and microorganisms involved in their formation. Field descriptions provided the following facies: i) *phytoherm*, formed by the accumulation of leaves, branch fragments and bryophytes cushions; ii) *shrubs* that are radii-fibers structures related to crystallization processes of bacteria filaments; and, iii) *stromatolites*, made by intercalation of laminas of micrite and shrubs. Pools, barriers and cascade/waterfall were identified as the main depositional environment, which are included to the fluvial depositional model. Images taken under SEM showed several cyanobacterial filaments. Organic composition showed the presence of n-alkanes and sterols. There was a predominance of n-alkanes $C_{16}$ to $C_{20}$, indicating the presence of algae. The phytoherm facies presented a slight predominance of n-alkanes $C_{26}$ to $C_{30}$, associated to higher plants. There is a dominance of n-alkanes with even numbers of C atoms, characterized by bacterial influence, related to induced mineralization of calcium carbonate.