

REFORM OF CARBONATE ROCK SUBSURFACE BY CRUSTOSE LICHENS AND ITS ENVIRONMENTAL SIGNIFICANCE

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ABSTRACTCrustose lichens are distributed extensively in karst areas in Southern CHINA. They can be found on the surface of carbonate rocks. Through biophysical and biochemical processes, crustose lichens reform the subsurface of carbonate rocks and in the meanwhile change their physical and chemical properties: (1) the mechanical strength decreases by 17.04 degree on average (up to 33.2 degree); (2) the chemical solution surface area increases from 28.26% to 75.36% (lichens microholes considered only); (3) the water-holding capacity is greatly improved. Comparative field experiments between biokarst samples underneath crustose lichens and fresh rock samples with the same composition and texture show that the corrosional rate of carbonate rocks of the former is 1.264-1.643 times higher than that of the latter. Crustose lichens are considered as an activator of the surface corrosion of carbonate rocks.