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Distribution of actinomycetes in near-shore tropical marine sediments.

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ABSTRACT

Actinomycetes were isolated from near-shore marine sediments collected at 15 island locations throughout the Bahamas. A total of 289 actinomycete colonies were observed, and all but 6 could be assigned to the suprageneric groups actinoplanetes and streptomycetes. A bimodal distribution in the actinomycete population in relation to depth was recorded, with the maximum numbers occurring in the shallow and deep sampling sites. This distribution can be accounted for by a rapid decrease in streptomycetes and an increase in actinoplanetes with increasing depth and does not conform to the theory that actinomycetes isolated from marine sources are of terrestrial origin. Sixty-three of the isolated actinomycetes were tested for the effects of seawater on growth. Streptomycete growth in nonsaline media was reduced by 39% compared with that in seawater. The actinoplanetes had a near obligate requirement of seawater for growth, and this is presented as evidence that actinomycetes can be physiologically active in the marine environment. Problems encountered with the enumeration of actinomycetes in marine sediments are also discussed.

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