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Researches on the isolation of thermophilic actinomycetes and the factors which influence their growth

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Thermophilic actinomycetes are a group of microorganisms with distinct characteristics growing in specific habitats. The studies performed have shown that their activity in the composts and fodders is more intense than in the soil. The soils provide limited conditions, except for those rich in usable nutritive substances. The composts and the fodders contain, at least temporarily, more nutritive sources. In both instances the thermoactinomycetes degrade the substratum, interact with other microorganisms and synthesise certain compounds. Termophilia is an ecological property that was not taken into consideration for taxonomic purposes for a very long time. From the morphological, chemical and, in some respects, physiological and biochemical points of view, thermophilic actinomycetes can not be easily distinguished from the mesophilic microorganisms. As a result, some authors are inclined not to consider this group as being distinct from the mesophilic forms. However, taken into account their growth temperature as well as other specific traits, they are treated as a separate group. Our research studies aimed at isolating thermophilic actinomycetes from various natural environments and establishing the optimal growth temperature and pH of each strain. A number of 293 strains of thermophilic actinomycetes were isolated (as pure cultures) from various sources. We were able to establish the optimal growth temperature for each strain (i.e. 450C for 16 strains, 550C for 247 strains and 650C for 30 strains). The optimal growth pH for the isolated strains was found to be 7.0, which show once more that the strains we had isolated were thermophilic.