

论文

从中国南方土壤分离的三种放线菌产生的多烯类抗菌素

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摘要:

对中国南方土壤最常发现之三种类型放线菌的三种代表抗菌素,从化学与物理性质与文献所报告者作了比较,发现抗菌素A-94与制霉菌素(Fungicide,Nystatin)为同一化合物。其他二个抗菌素A-113与A-262之研究推论为属于七烯类之新抗菌素,这两个抗菌素除抗酵母菌外并具有抗原虫、流感病毒之生物性质。

关键词:

THREE TYPES OF POLYENE ANTIBIOTICS PRODUCED BY ACTINOMYCETES ISOLATED FROM THE SOILS OF SOUTHERN CHINA

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Abstract:

Studies on three types of antifungal antibiotics produced by representative Actinomycetes has been described. Three morphologically distinct groups classified as series white, yellow and brown were subjected to chemical examinations for their characteristics. All these groups of Actinomycetes were primarily antifungal against a variety of test fungi. They are taxonomically unrelated organisms possessing the ability to produce different forms of antifungal substances. By means of solvent extraction, three antibiotics designated as antibiotic A-94, A-113 and A-262 were successively obtained in forms of crystalline powder or amorphous solid. The characterized ultraviolet and infrared absorption spectra of these antibiotics indicated the presence of chemically different polyene structures, for example, antibiotic A-94 was classified as conjugated tetraene, and both antibiotic A-113 and A-262 as conjugated heptaene. On the basis of comparison of chemical reactions with the known polyene antibiotics recorded in literatures, it is suggested that, antibiotic A-94 is identical to fungicidin, and antibiotic A-113 and A-262 should be regarded as two new members of the heptaene group, based upon the fact that although both gave positive Molisch reaction as does amphotericin B, they differed essentially from amphotericin B by specific rotation in several solvents. However, with the aid of analysis of functional groups it is possible to differentiate antibiotic A-113 from antibiotic A-262 according to the absence of N-methyl group in the molecule of antibiotic A-262. The biological spectra of these antibiotics when tested upon representative organisms showed that both the heptaene antibiotic A-113 and A-262 were active in vitro against influenza virus PR₈ and protozoa such as trichomonas vaginalis, while the tetraene antibiotic A-94 was found to have weak effect against influenza virus and no effect on protozoa. All these three polyene antibiotics were strongly effective-against pathogenic and sapropttic candida and bear yeast, but apparently have no inhibitory action against different forms of bacteria as well as Ehrlich ascites tumour cell.

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