

杆菌在平板上的生长模拟

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在计算机上模拟了杆菌代谢产物对杆菌自身繁殖的影响。基于代谢产物对杆菌繁殖的影响,引入扩散速率(k_0),繁殖扩散时间比率($r=T_r/T_d$),代谢产物对繁殖的抑制系数(m)。在 $r=4$ 时,对不同的 m 、 k_0 组合进行了比较分析,得到较为满意的结果。用等高图和矢量图对代谢产物浓度进行了分析,得出结果为杆菌群落内部趋于平衡和稳定,群落边缘高度不平衡。

SIMULATING GROWTH OF Bacillus ON AGAR PLATE

As Bacillus colony is an interdependent system, it was simulated that the metabolite restrained reproduction of bacillus by computer. For this purpose, diffusionrate k_0 and the ratio $r(r=T_r/T_d)$ were used, T_r is the time for reproducing one grneration, T_d is the time of one diffusing step, and the inhibition coefficient of metabolite on reproduction is m . At $r=4.0$, the different combination of k_0 and m were studied comparatively and the results are in accord with the fact. Applying contour line and vectorgraph to analyze the concentration of matebolite, results showed that the interior of bacillus colony tends to become equilibrium and stable while the edge of bacillus colony is highly instable.

关键词

模拟(Simulation); 杆菌(Bacillus); 自组织(Self-organization); 等高图(Contour); 矢量图(Vectorgraph)