

عنوان مقاله:

Inhibitory and Stimulatory Effects of Some Metals on Asparaginase Activity Produced by Staphylococcus MGM1

محل انتشار:

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خلاصه مقاله:

Background: Asparaginases are known to be the cornerstone for the treatment of acute lymphoblastic leukemia (ALL) and are used for treatment in all pediatric regimens as well as in the majority of adult treatment protocols. Clinical hypersensitivity reactions against commercially available asparaginase have resulted in the failure in the treatment of ALL in more than 60% of cases. Thus, it is required to search for serologically different asparaginases from new organisms for patients exhibiting sensitivity to one formulation of asparaginase. **Materials & Methods:** The experiments were conducted in 250 mL flasks containing 100 mL of M9 broth medium and incubated at 35°C for 48 h with shaking 100 rpm. The bacterium produced an extracellular asparaginase enzyme in which a heavy metal-rich medium was influenced—considering that this idea, enzyme activity was marked at the presence of metal salts such as FeCl₃, ZnCl₂, CoCl₂, MgCl₂, CaCl₂, CuSO₄, KCl and NaCl with the different concentrations as 0-3% W/V. **Results:** In this research, we isolated a bacterium that belonged to staphylococcus species named strain MGM1 and deposited to NCBI by accession number of KT361190. The results showed that Na⁺, Fe²⁺, and K⁺ were inducted to enzyme production, and Zn²⁺ had no effects, while Cu²⁺, Ca²⁺, and Mg²⁺ inhibited enzyme activity when their concentrations increased up to 1%. **Conclusion:** This study aimed to investigate the effects of different ions on the activity of the enzyme in the blood and fluid of the body. Such compounds are vital elements in the blood, and therefore, their effect on the enzyme is very important, So This experiment suggests that asparaginase could be affected by the metals.

کلمات کلیدی:

Antileukemia activity, Heavy metal, Inhibitory effect, L-asparaginase, Stimulatory effect, Staphylococcus, Heavy metal, inhibitory effect, stimulatory effect, L-asparaginase, L-asparaginase, Staphylococcus

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