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[doi:10.11861/j.issn.1000-9841.2008.06.1037]
HAN Ming-hai,ZHAO Juan-juan,HUA Sheng-long,et al.Identification of A Strain with High Ability of Producing Glutaminase and Study of Enzymatic Characterization[J].Soybean Science,2008,27(06):1037-1040.
[doi:10.11861/j.issn.1000-9841.2008.06.1037]

点击复制

一株高产谷氨酰胺酶菌株的鉴定和酶活特性的研究

《大豆科学》 [ISSN:1000-9841 /CN:23-1227/S] 卷: 第27卷 期数: 2008年06期 页码: 1037-1040 栏目: 出版日期: 2008-12-25

Title: Identification of A Strain with High Ability of Producing Glutaminase and Study of Enzymatic Characterization
文章编号: 1000-9841(2008)06-1037-04

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关键词: 谷氨酰胺酶 (KeySearch.aspx?type=KeyWord&Sel=谷氨酰胺酶); 酱油 (KeySearch.aspx?type=KeyWord&Sel=酱油); 柠檬酸细菌 (KeySearch.aspx?type=KeyWord&Sel=柠檬酸细菌); 鉴定 (KeySearch.aspx?type=KeyWord&Sel=鉴定)

Keywords: Glutaminase (KeySearch.aspx?type=KeyWord&Sel=Glutaminase); Soy sauce (KeySearch.aspx?type=KeyWord&Sel=Soy sauce); Citrobacter sp. (KeySearch.aspx?type=KeyWord&Sel=Citrobacter sp.); Identification (KeySearch.aspx?type=KeyWord&Sel=Identification)

分类号: TQ925

DOI: 10.11861/j.issn.1000-9841.2008.06.1037 (http://dx.doi.org/10.11861/j.issn.1000-9841.2008.06.1037)

文献标志码: A

摘要: 对筛选得到一株高产谷氨酰胺酶菌株进行了初步鉴定并对酶活特性做了研究。通过生理生化实验并结合菌体形态特性, 结果发现该菌株可以确定该菌属于柠檬酸细菌属(Citrobacter)。通过单因素试验, 考察了温度、pH、NaCl和产物谷氨酸对该菌株产生的谷氨酰胺酶的影响。结果发现菌株产生的谷氨酰胺酶的最佳反应pH为6.2, 酶最适反应温度为50℃。酶最稳定的pH为6.2, 温度低于40℃, 酶具有较高的稳定性。高浓度的NaCl对谷氨酰胺酶活性基本无影响, 谷氨酸对酶也没有明显的抑制作用。

Abstract: In the paper, a strain with high ability of producing glutaminase was identified and enzymatic characterization of glutaminase was studied. According to morphology, physiological and biochemical characteristics, it can be roughly concluded that the strain belongs to Citrobacter. The relationship between pH, temperature, NaCl, glutamic acid and glutaminase was studied. The optimum temperature and pH of glutaminase from the strain was 50℃ and 6.2, respectively. When pH was 6.2 and temperature below 40℃, the enzyme showed high thermal stability. High concentration of NaCl didn't not have negative influence on enzyme activity and glutamic acid didn't pose considerable inhibition to glutaminase.

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更新日期/Last Update: 2014-10-06

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