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Effect of Fermentation Media on Cellaluse Enzyme by Trichoderma spp.

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Abstract
The effects of fermentation media on cellulase enzyme by *Trichoderma spp.* were investigated in this work. Cans and corn white media were used to produce the cellaluse enzyme from this isolate. The cans medium is better than soybean medium in production cellaluse enzyme by *Trichoderma*. It was found that cans medium is in development cellaluse production.

Keywords: proteolytic activity; Cans; corn white , enzyme activity

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1. Introduction

Microorganisms are an ideal source for enzymes production that are reproductive very quickly and in a short time [1]. Cellaluse is one of the most Worthwhile enzymes for biotechnology and its global market has been growing significantly. Cellaluse s are the efficient executioners of a common chemical reaction: the hydrolysis of peptide bonds[2]. Cellaluse is obtained mainly from *Aspergillus* and *Penicillium*. The different hydration rates were used in material fermentation Solid, the humidity effect on cellaluse production of *A. flavus* was ranged between 35-80% while the effect on *A. oryzae* was at 50%[3]. The cans medium is better than soybean medium in production cellaluse enzyme by *A. flavus*. It gives a productivity higher than that of soybeans by approximately a half times[4]. Also It was found that cans medium is in development cellaluse production by *A. oryzae* was the best among solid fermentation media[5]. This study evaluate the effect of agro-waste for potential cellaluse product by *Trichoderma spp.*

2. Experimental Part

Aspergillus niger was used to produce cellaluse. Two waste materials were used: bran and corn white as basic materials for the production of cellaluse enzyme. Available solids of 10 gm/flask were used. The above-mentioned solids are moistened using them Including phosphate at a concentration of 0.2 molar and no pH 7, with a hydration ratio of 1:5) by volume /weight (by adding 50 ml of buffer Phosphate to 10 grams of solid and binder Wet the oil with solids and sterilize the flasks It is sealed with a temperature resistance of 121 °C and a pressure of 15psi for 15 minutes. The flasks were inoculated with the suspension Spores: 610 spores/10 gm and incubated for 72°C. Murachi method [6] was applied to evaluate Cellaluse using casein %0.0 with different types of basic materials and defines the unit Enzymatic: It is the amount of enzyme that is amplified in Optical wavelength at wavelength 220 nanometers per minute under standard conditions. Protein concentration can also be measured by strength loss According to the method described by Bradford[7].

3. Results and Discussion

For the purpose of study the efficiency of selected local isolate *Trichoderma* to produce the cellaluse enzyme using fermentation technology. When planting hardwood, waste of plants were used as a culture media to test the best solid fermentation medium to produce the cellaluse enzyme from this isolate. Cans and corn white A (solid media, separately). It turns out that the center of cans is better fermentation medium for enzyme production compared to another medium. With cans medium the enzymatic activity was at 1600 units/ml and effectiveness was at 1300 units/mg Protein. While the enzymatic activity with corn white medium was at 350 units/ml and effectiveness 290 units/mg protein. The reason for the superiority of cans over the another medium (corn white) was may be to Class A (for the high content of planets, as its protein content 14.62% compared while corn white contains 9.93 of protein. Also, the physical properties of materials that used in the fermentation of solid culture effects the production of various enzymes such as the size of particles. The surface area exposed to the action of living organisms Microstructure and porosity of the medium[8,9]. Previous study found that the cans medium is better than soybean medium in production cellaluse enzyme by *A. flavus*. It gives a productivity higher than that of soybeans by approximately a half times[4]. Also It was found that cans medium is in development cellaluse production by *A. oryzae* was the best among solid fermentation media[5].

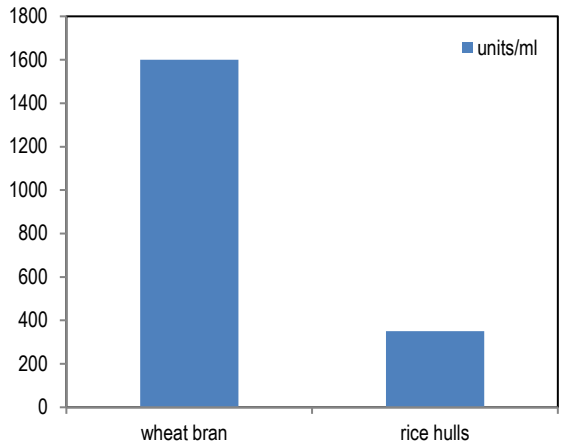

Fig. (1) Effect of formation media on cellaluse enzyme activity

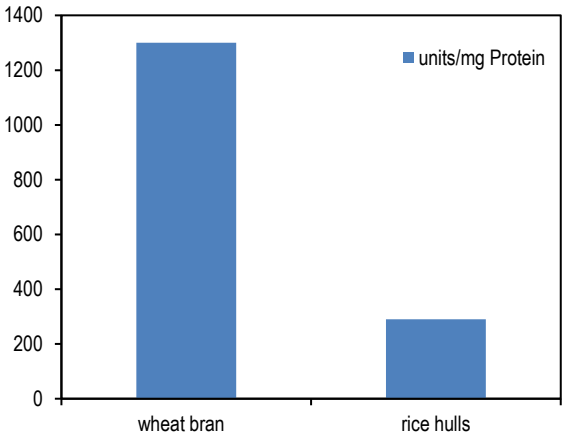

Fig. (2) Effect of formation media on cellaluse enzyme activity

Cellaluse enzyme productivity from *Trichoderma* elevated when temperature increase from 25 to 30 °C and also won an award in both enzymatic activity and specific activity at temperature rises above 30°C. For a long time The optimum temperature for enzyme production was 30°C, at enzymatic activity is 1610 units/ml and is effective 1500 units/mg protein and varies, changes in Both the enzymatic activity and specificity of the enzyme at Temperature rises above 30°C. The drop in temperature below the optimum level. It leads to slow growth and delayed enzyme synthesis. This temperature is suitable for mushroom growth. On the other hand Enzyme stability on the other hand, the optimum temperature for the production of cellaluse enzyme. This study is 30 m in length, along with the results of other studies. It dealt with the production of cellaluse enzymes by species where *Aspergillus* temperatures rise 30 °C. The optimum for the production of these enzymes between 28°C. These studies indicated a decrease in the effectiveness of the enzyme.

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