Enzymatic activity of serine proteases in the hemolymph plasm of hoeseshoe crab tachypleus / Mahfuzah Che Abdullah.

Lihat Sebelah

Enzymatic Activity of Serine Proteases in the Hemolymph Plasma of Horseshoe Crab *Tachypleus gigas*

By

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A PITA report submitted in partial fulfillment of the requirements for the degree of Bachelor of Biological Sciences

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DECLARATION

I hereby declare that this PITA research report entitled Effect of MK2 Compound on Pathogenic Fungi and Bacteria is the result of my own research except as cited in the references

Signature : .....

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Date : 16 JUNE 2011

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ABSTRACT

There have been several studies made to date that focus on industrial enzymes which are seen as very crucial and important to the growing market of industrial enzymes. In order to seek for alternative and a new source of major enzyme especially in lather industry, a research had been done to determine the activity of serine proteases from the less precious hemolymph plasma of horseshoe crab *Tachypleus gigas*. An optimization of the serine proteases activity was determined using three parameters which are hemolymph plasma volume, temperature and incubation time. The experiment has recorded the optimum temperature for the activity of serine proteases at 40°C and incubation time at one hour. Optimum volume of hemolymph plasma however could not be determined. From the reading of serine proteases activity from the assay, unfortunately, very low activity of serine proteases occurred in the hemolymph plasma of horseshoe crab, *T.gigas*, thus making hemolymph plasma not a suitable source for serine proteases in mass production industry.

ABSTRAK

Pada masa kini, terdapat beberapa kajian telah dilakukan yang memfokus kepada enzim-enzim industri yang dipandang sebagai sangat penting bagi pasaran enzim industri. Dalam rangka untuk mencari alternative dan sumber baru enzim utama industri yang semakin meningkat terutamanya industri detergen, kajian telah dilakukan untuk menentukan aktiviti protease serin dari plasma hemolimf yang dilihat kurang komersil berbanding lisat amebosit daripada belangkas. Dalam kajian ini, penentuan keadaan optimum bagi aktiviti enzim protease serine telah dilakukan dengan menggunakan tiga parameter iaitu isipadu plasma hemolimf, suhu dan masa inkubasi. Melalui kajian, suhu optimum untuk aktiviti protease serin adalah pada 40^{o}C dan masa inkubasi adalah selama satu jam. Isipadu plasma hemolimf yang optima gagal ditentukan. Daripada aktiviti protease serin yang dikaji, didapati activity enzim adalah agak tinggi dan mungkin sesuai untuk dijadikan sebagai salah satu sumber bagi pengeluaran protease serine secara industri. Namun penyelidikan yang lebih mendalam harus dilakukan lagi.