بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Biochemical Studies on Nucleosides Degradation and their Bases by Extracts of Fungi

By

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M.Sc. (Microbiology)

Ain-Shams University

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A Thesis

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Ph.D. Thesis

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Degree : **Ph.D. in Microbiology.**

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ABSTRACT

1- Thirteen filamentous fungi were screened for the abilities of their extracts to catalyze the hydrolytic and / or the deaminating activities of some purine and pyrimidine nucleosides and bases. *Penicillium viridicatum* was selected for further studies.

2- Ribose and adenine, guanine or hypoxanthine were chromatographically identified from the degradation of adenosine, guanosine or inosine respectively as a result of hydrolytic activity in cell-free extracts of *P. viridicatum*.

3- The rate of hydrolytic cleavage of N-glycosidic bond of purine ribonucleosides by extracts of *P. viridicatum* was in the order Inosine > Guanosine > Adenosine.

4- The degradation of guanosine by extracts of *P. viridicatum* was suggested to be affected by a hydrolase to give guanine and ribose. The resulting base was then deaminated to give xanthine by deaminase.

5- The only activity observed against pyrimidine ribonucleosides was that of cytidine deaminase. Uridine produced from cytidine was chromatographically identified.

6- Studies on the properties of the purine nucleoside hydrolase or cytidine deaminase indicated that optimal activity was obtained at pH 4.0 and 50°C or pH 6.0 and 40°C , respectively.

7- Cell-free extracts of *P. viridicatum* which was grown on xanthine and uric acid contained the enzymes xanthine dehydrogenase, uricase, allantoinase, allantoicase and urease respectively. These enzymes catalyzed the oxidation of xanthine to uric acid, the oxidative decarboxylation of uric acid to allantoin, the hydrolysis of allantoin to allantoic acid, the degradation of allantoic acid to glyoxylic acid and urea and finally urease hydrolyzed urea to ammonia and carbon dioxide.

Key words:- Filamentous fungi, *Penicillium viridicatum*, Degradation, Purine nucleosides, Pyrimidine nucleosides, Purine bases, Purine nucleoside hydrolase, Cytidine deaminase, Xanthine, Uric acid, Allantoin, Allantoic acid, Glyoxylic acid, Urea

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