



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





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# شبكة المعلومات الجامعية

## التوثيق الالكتروني والميكرو فيلم

# جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأفلام قد اعدت دون أية 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 %



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# بعض الوثائق الأصلية تالفة



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بالرسالة صفحات  
لم ترد بالأصل

رسالة الماجستير  
CLINICAL EVALUATION AND  
TRYPSIN-LIKE ACTIVITY IN THE  
SUBGINGIVAL PLAQUE AFTER LOCAL  
APPLICATION OF METRONIDAZOLE 25% DENTAL  
GEL IN ADULT PERIODONTITIS

Thesis Submitted  
in Partial Fulfillment for the Requirements of the  
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In  
**Oral Medicine, Periodontology,  
Oral Diagnosis and Radiology**

By  
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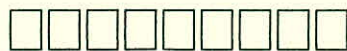
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Protocol of Thesis ..

Arabic Summary ...

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To My  
Children

Ahmad & Nada

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# ===== CHAPTER I =====

## ≡≡≡ Introduction ≡≡≡

Chronic adult periodontitis is a predictable form of periodontal disease, affecting older individuals and progressing at a slow rate.<sup>(1,2)</sup> Its etiology is often traced to the presence of local factors. An abundant and highly complex microbial flora is present within the pockets of patients with adult periodontitis.<sup>(2)</sup>

The mechanical therapy may fail to reduce or eliminate all the anaerobic infection at the base of the pocket as some of the periodontal pathogens can penetrate the soft tissues and the cementum; also because of anatomic factors.<sup>(3,4)</sup>

One alternative or supplement to mechanical therapy, is the use of an antimicrobial drug, either systemically or topically applied.<sup>(5)</sup>

Systemic antibiotics were used in a relatively high doses in periodontal therapy to get an adequate concentration in the sulcus fluid, if an appropriate effectiveness is to be achieved, this results in disturbance in the commensal flora,<sup>(6,7)</sup> development of bacterial resistance<sup>(8)</sup> and/or allergic sensitisation rather than other systemic obvious side effects.<sup>(9)</sup> These disadvantages may be avoided by local application of an antibiotic or antimicrobial drug directly into gingival sulcus or periodontal pocket; resulting in a very high active concentration to be attained at the inflamed periodontal tissues.<sup>(10)</sup>

**Metronidazole** has the advantage of being directed specifically against the anaerobic organisms that are believed to be the major periodontal pathogens, with the



healthy microflora being relatively unaffected.<sup>(11-13)</sup> Recently, metronidazole is applied to the periodontal pocket, using various delivery systems which keep it in the pocket and are designed for sustained release over a longer period.<sup>(14-18)</sup> As the delivery devices were made of solid or rigid material, they were dislocated from the sulcus after a short time; moreover, they were not convenient.<sup>(10)</sup> These problems seem to be eliminated with oil-based metronidazole 25% dental gel, directly applied in viscous consistency to the pocket, when it is liquefied by body heat and then hardens again forming crystals in contact with crevicular fluid.<sup>(19-22)</sup>

On the other hand, spirochetes are believed to be one of the major pathogens associated with adult periodontitis,<sup>(23-34)</sup> several studies had established the relationship between the spirochetes and the degree of inflammation, pocket depth, the amount of calculus at the site of sampling, and indices of periodontal diseases.<sup>(24-30,34)</sup>

The taxonomic screening of subgingival plaque microorganisms with various enzyme assays had shown that spirochetes possess a trypsin-like enzyme activity.<sup>(35-37)</sup> This activity was measured as the hydrolysis of the colorless substrate N-benzoyl-DL arginine-2-naphthylamide (**BANA**).<sup>(23,31)</sup> If the magnitude of (**BANA**) hydrolyzing activity could be correlated with the periodontal status of the patient, and/or proportions of the putative periodontopathogens, this enzyme activity might have a diagnostic significance.

So, in the present study, the trypsin-like activity of the subgingival plaque of adult periodontitis will be examined



before and after local application of metronidazole 25% dental gel, in a trial to estimate the benefit or the action of the use of local antimicrobial drug in suppression and elimination of the subgingival microorganisms involved in the etiology of adult periodontitis, as well as the **(BANA)** hydrolysis might have a diagnostic significance in monitoring the efficacy of the drug.

