

The Effect of Banana Skin on the Bacterial Infections of the Chronic Gingivitis Patients

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الخلاصة:

جمعت 100 عينة (36% اناث و 37% ذكور) من مسحات اللثة لاشخاص مصابين بالتهاب اللثة المزمن، واجري الفحص السريري والبكتيري لهذه العينات. عزلت اكثر من 4 اجناس بكتيرية من موضع الاصابة واكثرها نسبة Bacteriodes spp و Fusobacterium spp يتبعها Streptococcus spp والعصيات الملونة pigmented bacilli والعصيات غير المكونة للابواغ التي وجدت في حالات مرضية قليلة .

بينت نتائج البحث فعالية قشور الموز في معالجة التهاب اللثة في المرضى الذين استخدموا قشرة الموز 3-4 مرات في اليوم، وقد اظهر المستخلص المائي لقشور الموز فعالية تجاه البكتريا المعزولة منها.

Abstract:

One hundred samples (63% females, 37% males) from periodontal patients. Clinical and bacterial examinations were done. More than 4 different genres of bacteria were present in these infection Bacteriodes spp, Fusobacterium spp were most frequently isolated followed by Streptococcus spp. Pigmented bacilli and non spore forming bacilli which was present in few cases.

These results are showed that the gingiva tend to return more normaly in group of patients using 3-4 times daily by rubbing the gingiva all round with the inner surface of banana skin until all the strap is finished.

The aqueous extraction of banana skin show very effective against aerobic and anaerobic isolated from periodontal diseases.

Introduction:

The common Banana scientifically known as *Musa sapientum*. There are many composition of banana skin like enzymes such as polyphenoloxidase, pectin as gelling agent ^[1,2]. Babby Gene ^[3] show that the banana peel extract is

used alone or combined with a cream or ointment, medicinal benefits of the extract include relief from pain, swelling & itching.

Chronic gingivitis is one of the most common disease found in patient, the cause of gingivitis is plaque [4, 5]. Sever changer include gingival enlargement, blush, red discoloration, bleeding on probing and formation of deep pockets may be pus can be expressed, resection the alveolar crest of bone resulting increase tooth mobility [6].

Gingivitis occurs due to change in the flora from gram positive aerobe bacteria to gram negative anaerobe numerous variables are considered to predispose and aggravate gingive and periodontal disease [7].

As currently understood, periodontal disease progression consists of a shift in the bacterial plaque from gram positive aerobic flora to a gram negative anaerobic and motile flora [8].

The amount of periodontal bacteria results in as inflammatory response that elevates the white blood cell counts and high sensitivity C-reactive protein levels which has been linked in past studies to heart disease [9].

Roger^[10] said that oral bacteria included Streptococcus. Lactobacilli, Staphylococcus and various anaerobes in particular Bacteroides, the gingival cervice area (supporting structures of the teeth) provides a habitat for a vanyity of anaerobes species, Bacteroides and spirochetes colonize the mouth around puberty.

Materials and Methods

Clinical Examination

One hundred patients (37% males & 63% females) their age ranged (25-65) years. Clinical examination done, sex and the condition of the gingiva all round from (1-3) times dally. The samples were divided into three groups. All patients received the same information of using the inner surface of banana skin by rubbing the gingival all of them complain chronic gingivitis, redness swelling, bleeding on gentle probing and pokets periodentitis. One group using this method of banana skin rubbing one time daily. The 2nd groups used this method two times daily, 3rd groups used this method three times or more daily. Until all the strap is finished, after 7days retain back to diagnosis the gingivitis, bleeding, redness edmontus, swelling found decrease and recorded.

Bacterial Examination

We collected (100) samples from gingiva of periodentits patient (37% of them males & 63% females) each sample inculcate on blood agar plate and nutrient agar plate and incubated aerobically and anaerobically by using anaerobically culture techniques [11].

For isolation and identify these organisms, gram stain and colony morphology of a pure isolates provides preliminary separation of many aerobic

and anaerobic organisms, additional to using biochemical reactions. The isolation and identification of these aerobic and anaerobic bacteria were preformed by ^[12].

Preparation of aqueous extraction of banana skin

Banana were purchased from local market, 10gm of the inner surface of the banana skin was extracted in 50ml of NaCl 0.5M, after blending, the mixture is filtered and the pH of the extraction adjusted to 7.5 by drop wise addition of NaOH. The suspension was stirred for 1hr at room temp ^[13].

Antibacterial assay (in vitro)

The isolated bacteria were grown on nutrient agar aerobic and anaerobically then incubated at 37°C for 24 hrs well were punctured in nutrient agar plate that was previously seeded through spreading of 0.2ml of bacterial suspension. Each well was filled with 50ml of aqueous extraction of banana skin and the plates were incubated at the same condition. The diameter of the resulting zone of inhibition was measured ^[14].

Results and Discussion:

Clinical and bacterial examination

The clinical examination of the chronic gingivitis, periodontitis patients was done to study the relationship between rubbing a banana skin with the chronic gingivitis. One hundred of adult Iraqi patients 63% females and 37% males, this age range between (25– 65) years. The results Shows that the gingiva tend to retain more normally in groups of patient using (3-4) times daily (Figure-1,2), and the group use this method two times a daily effected less than 3rd group and mild effect on gingivitis when use it one time a day .

The periodontal bacteria are known to produce and secrete numerous compounds that are damaging to our body' defense mechanism, these include free radicals and enzymes which are capable of destroying connective tissue^[15].

The microscopic observation of periodontal patients swabs have shown (Table-1) anaerobic gram negative as *Fusobacterium* spp and *Bacteroides* spp (esculin hydrolysis) were identify by using biochemical reactions. Additional to pigmented bacilli, gram positive cocci (*Streptococcus* spp) and gram positive bacilli, non spore forming were isolated from 100 samples of periodontal infections.

From our results we concluded that anaerobic oral microorganisms frequently were found in these infections. Other studies found anaerobic microorganism on the surface of the sulcular epithelium and in the epithetral and connective tissue of the gingiva of individuals with periodartal diseases ^[16].

Yaegakik and Sanada ^[17] interproximal space and periodontal pockets are conducive to anaerobic growth, several periodontal pathogens, including

Treponema, Fusobacterium nucleatum and Bacteroides melnaogenicus additional to Prophyomonas gingivitis.

Effect of aqueous extraction of banana skin towards the isolated bacteria

The antibacterial prosperities of the aqueous extraction of banana skin were initially evaluated by well diffusion assay against a bacteria from periodontal patients. The results are presented in (Table-2) show that the aqueous extraction of banana skin exhibited a variable degree of antibacterial activity against of the isolates bacteria.

The a aqueous extraction show very effective against anaerobic bacteria

Our results agree with ^[18] which conclude that unidentified substance extracted from banana skin has been shown to inhibit Closteridium sporangium and other gram negative spore forming bacteria by using plate biological assay, the unknown substance demonstrate inhibitory effects at pH values as high as 7.5

Finally we interest with banana skin due to their many contents which treated chronic gingivitis periodentitis by using banana skin.

Gram stain	Appearance	Organisms	Type of respiration
Negative	Bacilli	Fusobacterium spp	Anaerobic
Negative	Bacilli in paires of singly	Bacteroides spp	Anaerobic
Positive	Cocci	Streptococcus spp	Aerobic
Negative	Pigmented bacilli		Anaerobic
Negative	Bacilli non spore form		Anaerobic

Table-1: Characterization of bacteria isolated from periodontal patients.

Bacteria	Diameter (mm)
Fusobacteriaum spp	13
Bacteroides spp	15
Streptococcus spp	12
Bacilli (No spore forming)	10
Pigmented bacilli	8

Table-2: Antibacterial activity of aqeous extraction of banana skin.

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