



## RESEARCH ARTICLE

## The Potential Healing Properties of Systemic Probiotic-Prebiotic Supplement on Angular Cheilitis

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### Abstract

Background: Angular Cheilitis frequently caused by anemia and malnutrition such as iron, B12, folate and zinc deficiency, but can also be caused by fungi. Probiotics are live organisms thought to benefit human health. Aim of the study: to test the efficacy of probiotics in the healing process of angular Cheilitis in elderly individuals. Materials & Methods: The sample included 58 individuals (both genders) with clinically apparent angular Cheilitis. The duration of the disease was between 8-10 days. The age ranged between (55-65) years. Probiotic-prebiotic food supplement selected to be used is (max biotic XL) sachets. Results: the majority of recovery cases recorded during the 2<sup>nd</sup> week in both genders, females showed better response as compared to males. The recovery potential declines with age. Conclusion: The main conclusions that have obtained in this research that the treatment is effective 89.5% for both genders. And it is more effective for females than males, the healing time for most patients is two weeks, and the treatment is more effective on age 60 for both genders.

**Keywords:** Probiotics, Prebiotics, Cheillitis, Supplement, Healing.

### Introduction

Oral health is a vital component of systemic health. World Health Organization defines it as a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, besides many other disorders that affect the oral cavity [1], several preventive programs adopted worldwide have tremendously contributed to reduce the extent and the severity of common oral diseases [2].

In the oral cavity, there are of a diverse organism including a thousand species of bacteria spread on the tongue, gums, palate and tonsils. Oral health is affected by many factors, including bacteria, age, health status and lifestyle [3].

One of commonest oral diseases is Angular cheilitis which is distinguish by erythema, ulceration, diffuse redness with an eroded area and crusting in the corners of the mouth [4].

Angular cheilitis occurs due to anemia and malnutrition as well as in the event of a specific deficiency requires the replacement of iron and vitamin B12 and folate and zinc. Angular cheilitis can also be caused by fungi (*Candida* spp.) and bacteria (*Staphylococcus aureus* or  $\beta$ -hemolytic streptococci) [5, 6]. The increasing antifungal resistance is becoming a severe problem global and new strategies to battle pathogenic fungi in biofilm texture have been advocated. In vitro studies have shown different inhibitory activity against oral *Candida* by several commercially obtainable probiotic [7].

Probiotics, a newly introduced potential tool reported to have beneficial effects on oral health. Still, probiotics are not great used in clinical dental practice due to lack of consciousness about them. Regrettably, there are very bounded experimental information on the possibility beneficial functions of other prebiotics for oral health.

The blend of probiotics with their comparing useful capacity advancing prebiotic ought to likewise be investigated. This calls for moves to be made toward this path in light of the fact that once the probiotics set a toehold in dentistry, they can be associatively advantageous for oral just as foundational strength of the human body and can evidently demonstrate to be a foundation in wellbeing promotion [8].

It is becoming increasingly obvious that there is not only disease connected and commensal bacteria in the oral cavity but also other microbes that show to be actively connected with health. These contain bacteria producing alkali and therefore with pH buffering capabilities [9].

Another advantageous function of some oral bacteria is the antimicrobial action versus oral pathogens. And clinical experiments are under way to test their activity in settle the teeth and improving oral health [10]. The aim of this study was to test cases of effectiveness of probiotics-prebiotics on cases with angular cheilitis. As well as relieve pain and healing of oral lesions and prevent secondary infections. The treatment depends on the causes and severity of the clinical symptoms of the oral cavity where the treatment procedures are taken by local or systemic medication.

In the case of fungal infections, treatment options are usually topical antifungal agents (e.g., nystatin, miconazole...etc). For example, when staphylococcus aureus infection occurs, topical treatments including antifungal and 1% hydrocortisone cream [11]. Oral infection is often caused by immunosuppressant drugs and Candida is the most common infection and does not require discontinuation of treatment [12]. Requires topical treatment such as nystatin, amphotericin B, miconazole, fluconazole, ketoconazole or clotrimazole. These non-toxic infections have an effect on the mucous surfaces of the oral cavity and esophagus and may become chronic [13].

Threatening candidiasis lives of patients under conditions of stress and weakness and cause "diseases of the diseased" [14]. Due to the slowdown antifungals compared with a few new antibiotics available as well as an increase of fungal strains and bacterial

emerging<sup>13</sup> coupled with little number of new antibiotics available as well as the increased rate of emerging resistant fungal and bacterial strains [15], has become invited researchers Almhennen and health and to determine the potential dependence of probiotic as an option in the protection of the oral cavity where it may show the use of probiotics has the effects of therapeutic and preventive common mouth disease.

## Materials and Methods

- The sample included 57 individuals (both genders) with clinically apparent angular cheilitis, who never received topical or systemic treatment for their condition. The duration of the disease was between 8-10 days. The age ranged between (55-65) years, hence geriatrics might have many predisposing factors for this condition as loss of vertical dimension or ill fitted prosthesis as well as anemia. They were examined at the dental college of both Iraqi university and Baghdad University. Time of sample collected between April and October 2018.
- The probiotic-prebiotic food supplement selected to be used is (max biotic XL) sachets. The product details are shown in pictures. The recommended dosage is one sachet daily on a full stomach.
- Smokers, pregnant ladies, children and diabetics were excluded. The time of case follow up scheduled on weekly interval up to a month.

All subjects read and signed informed consents; they were strictly advised not to consume any other food supplements during treatment to avoid product counteracting and bias.

## Statistical Analysis

### Results

Table.1 shows the recorded data for the Patients age and the recovery period per week. Table 2. Number of recovered Patients per week. Fig.1 shows the response of patients (both genders) during 4 weeks, Fig 2. Shows the general response of patients to the treatments during one month and Fig 3 shows the response of each age categories to the treatment over 4 weeks.

**Table 1: Patient’s age and the weekly recovery period**

Male age	Healing week		Female age	Healing week
55	0		61	0
58	0		64	0
62	0		58	1
64	0		61	1
55	1		61	1
56	1		64	1
56	1		64	1
56	1		65	1
60	1		55	2
62	1		56	2
63	1		56	2
64	1		56	2
65	1		57	2
56	2		57	2
57	2		58	2
58	2		58	2
58	2		58	2
58	2		59	2
59	2		59	2
60	2		59	2
60	2		60	2
60	2		61	2
60	2		61	2
60	2		62	2
61	2		63	2
61	2		64	3
62	2			
63	2			
57	3			
59	3			
64	3			

**Table 2: Number of Patients and the weekly recovery period**

Week	Patient	Male	Female	Patient response
1	15	9	6	Recovered
2	33	15	17	
3	4	3	1	
4	6	4	2	No response

**Discussion**

Angular cheilitis commonly affects each sex, male and feminine. As a result of many folks who are suffering from this malady don't exhibit symptoms of the system a alimentarium, the delay in identification is extremely common and cause malignant tumors [16]. In this study, the prevalence of dental enamel defects was evaluated, furthermore because the prevalence of dental enamel defects was assessed, as were some oral and demographic parameters in patients

with angina-angina infection diagnosing, however, wide selection of studies was done on this strain and evidenced its safety on humans.

The obtained knowledge during this study indicate that the employment of a microscopic organisms orally to forestall or treat oral monilia disease might have benefit, notes more clinical investigations [2]. The research included 57 patients (both genders) with age ranged (55-65), 31 male (54.38%) and 26 female (45.62%). During four weeks, the

healing response of the patients (both genders) was recorded as shown in Table 1. It was noticed that the treatment affects the patients positively [17] and differently according to their gender and age, while the healing time varies differently. In general, 6 patients out of 57 didn't respond for the treatment as shown in Fig 1. Below, more specific details discussed according to:

- **Gender:** female recovered better than male
  - Female
    - 24 female out of 26 responded positively for the treatment (97% of females).
  - Male
    - 27 male out of 31 responded positively for the treatment (93% of males).

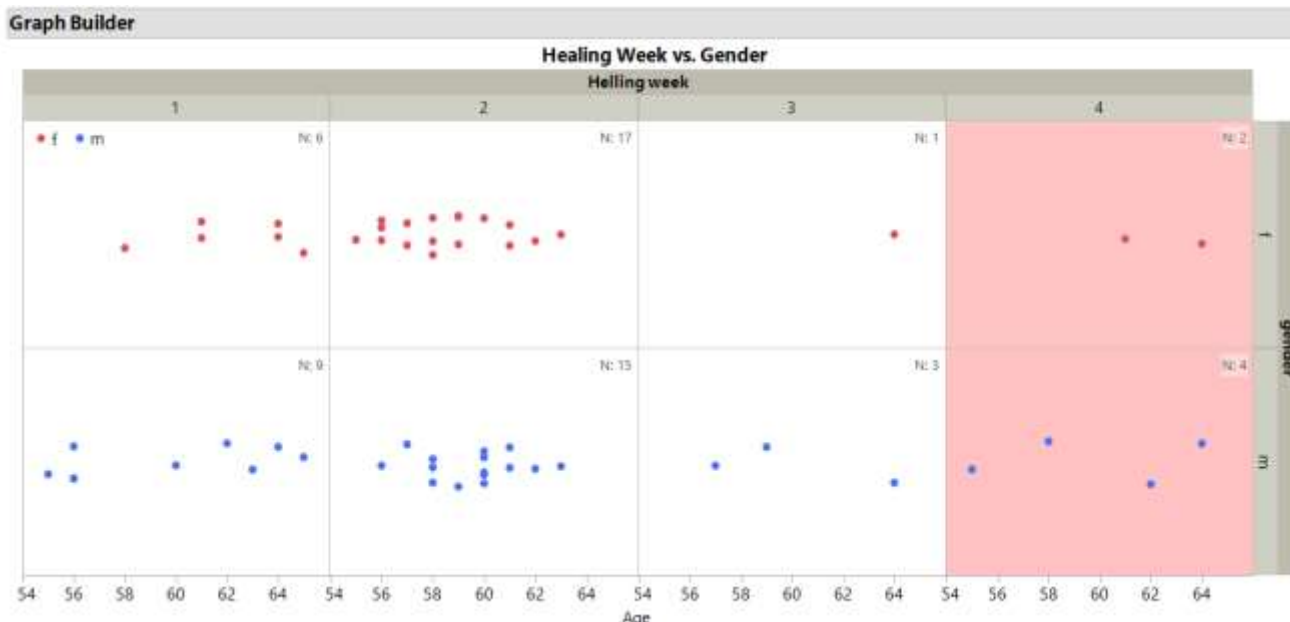


Fig. 1: Response of patients (both genders) during 4 weeks

- **Healing response:** week 2 recorded a higher recovery percentage as shown in table 2 and Fig 2.
  - Female
    - 6 females responded positively in the first week.
    - While 17 females responded in the second week,
    - 1 female recovered in the third week.
  - Male
    - 2 patients didn't recovered.
    - 9 males responded positively in the first week.
    - While 15 males responded in the second week ,
    - 3 males recovered in the third week.
    - 4 patients didn't recovered.



Fig. 2: The general response of patients to the treatment during one month

- **Age:** The patients were divided into 5 categories according to their ages as shown in fig.3
- **Female**
  - The first three age categories (55-61) totally recovered 100% during two weeks.
  - Age (61-63), their recovery percentage is 83%. 33% of them recovered in one week while 50% needed two weeks to recover. And 16.7% didn't respond to the treatment.
  - Age (63-65) their recovery percentage is 83.4%. 50% of them recovered in one week while 16.7% needed two weeks to recover, and 16.7% needed three weeks to show improvements. And 16.7% didn't respond to the treatment.
- **Male**
  - First group (55-58) their recovery percentage is 83.4%. 50% of them recovered in one week while 25% needed two weeks to recover, and 12.5% needed three weeks to show improvements. And 12.5% didn't respond to the treatment.
  - Second group (58-59) their recovery percentage is 75%. 75% of them recovered in one week while 25% didn't respond to the treatment.
  - Third group (59-61) totally recovered 100%. 12.5% of them recovered in one week while 75% needed two weeks to recover, and 12.5% needed three weeks to show improvements.
  - Fourth group (61-63) their recovery percentage is 80%. 20% of them recovered in one week while 60% needed two weeks to recover, and 20% didn't respond to the treatment.
  - Fifth group (63-65) their recovery percentage is 83.4%. 50% of them recovered in one week while 25% needed two weeks to recover, and 12.5% needed three weeks to show improvements. And 12.5% didn't respond to the treatment.

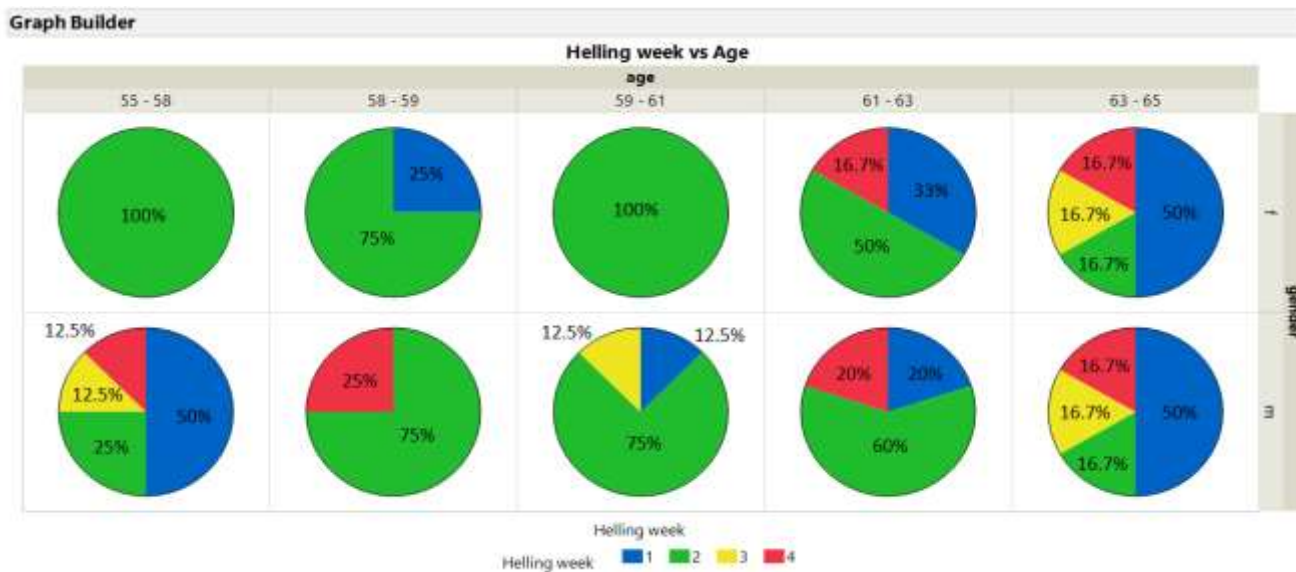


Fig. 3: Response of each age categories to the treatment over 4 weeks

The main source of probiotic prophylactic bacteria may be caused by the oral cavity with a balance between species and interactions between species. Moreover, the daily intake of probiotic supplements may control common oral and dental infections [5]. Human microorganism infections area unit illustrious to be multi-component in their composition and should embody microorganism and fungi. These advanced microorganism unions area unit typically organized into biofilms that have developed

resistance against antimicrobials, improved organization, and therefore the distinction between improved species [18, 19]. This might be the reason for the delay in some of the patients for healing.

### Conclusion

The main conclusions that have obtained in this research that the treatment is effective 89.5% for both genders. And it is more effective for females than males, because 97%

of the participated females recovered better during the first three weeks, while 93% of the participated males recovered in one month. In general, the healing time for most patients is two weeks, and the treatment is more

effective on age 60 for both genders. Researches and data regarding the results of probiotic within the mouth are accumulating, and the mechanisms of their molecular action or now clearer.

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