

## The oral mucosa alteration associated with the use of khat leaves chewing by the people in Yemen

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### Abstract:

The use of Khat "catha leaves" chewing appear to be finding its way onto the people in Yemen as a socially acceptable and popular habit. Numerous reports have described oral changes that appear to be associated with the use of catha leaves chewing in adult.

A study was therefore undertaken to determine the influence of catha leaves chewing on the mucosa of the oral cavity. Among the total sample of 120 adult habitué, red lesions are identified clinically in the oral mucosa of six individuals. In three individuals white lesions are identified at the mucobuccal fold and superficial lesions with color similar to surroundings mucosa was identified in 12 individuals.

### Keywords:

Oral mucosa, Khat, mucobuccal fold.

### Introduction:

Khat or Qat (*catha edulis*) is an evergreen shrub grown in Yemen & in certain East African countries such as Ethiopia, Somalia, Djibouti & Kenya. Catha leaves is known by a variety of names, many of them phonetic transcriptions of the most commonly used Arabic chat, catha, Kat. Now referred in the literature as Khat and the name street called Khat. The term mira or mirca is also common particularly in area of Kenya<sup>(1)</sup>.

The first evidence of using Khat in Yemen goes back to the arabian physician "Najeeb Al-Deen" in 1237, who prescribed Khat for the treatment of a psychological depression. Others believed that Khat appeared in Yemen shortly after Islam and was used to reduce sense of hunger & fatigue<sup>(2)</sup>. Because of its psychostimulant effect similar to that of an amphetamine due to habit forming properties, Khat has been classified as a substance of abuse by

the World Health Organization<sup>(3)</sup>. People first used Khat similar to coffee and tea by boiling it and then drinking it, later on they used it as chewing the green fresh leaves or even they can be ground taken as juice a custom wide spread in Ethiopia or used as paste for those edentulous patients.

The difference between Khat and other stimulant agent is related to the special way in which Khat is consumed. Fresh Khat leaves are chewed and held in the lower buccal pouch unilaterally in a bolus for three hours or longer<sup>(4)</sup>.

The leaves of Khat are chewed after harvest if they stay more than two days the active ingredients are dissipated and the leaves become unfit for use, this means that leaves must reach their destination in two days of harvesting with the rise of moisturized<sup>(5)</sup>.

The composition and clinical effect of Khat have been the subjects of several studies<sup>(6)</sup>. Adam identified constituents are phenylalkamine

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alkaloids (including cathinone, nor-ephedrine, norpseudo ephedrine and eluline), amino acid, tannins, vitamins

and minerals. Hattab et al put a table for the constituent concentration of fresh Khat leaves in mg/100g <sup>(7)</sup>.

**Table(1):** Constituents of Khat (fresh leaves).

Material	Conc. mg/100g of fresh leaves
Protein	5200
Ascorbic-acid	145
Niacin	14.8
Thiamin	< 0.05
Riboflavin	< 0.05
B- carotene	1.8
Calcium	290go
Iron	18.5
Floride	0.09
Alkalioids	102
Nor pseudoephedrine	96
Nor ephedrine	47

The general effects of Khat are hypnotic on the people suffering from physiological disturbance. People using Khat have less sugar because Khat blocks the absorption of sugar from intestine due to the effect taine on catha leaves. Khat is used indigenous medical systems in north eastern and south eastern Africa as remedy for such complaints as venereal disease asthma and other lung diseases, cold, fever, coughs and headache. Occasionally it is used to prevent epidemics of pest and malaria <sup>(8)</sup>.

The disadvantage of using Khat on human body

1. Because of presence of ephedrine in Khat, they cause increase in blood pressure, pulse rate and palpitation.
2. Effect on GIT cause loss of appetite then malnutrition then abdominal pain then uses Khat to stop pain and so on as followings Khat loss of apatite, malnutrition, abdominal pain → Khat.
3. There is a significant association between the habits of Khat and chewing and the development of

hemorrhoidal disease and this due to the sympathetic action of cathinon in Khat may cause the observed delay in gastric emptying <sup>(9)</sup>.

#### **Effect on the mouth:**

- 1- The use of Khat leaves results in increase of gingival recession and elevation in mean DMF and caries experience <sup>(10)</sup>.
- 2- Report showed that chronic Khat chewing could cause keratosis of the mucosa, occlusal attrition, dental discoloration and TMJ dysfunction <sup>(4)</sup>.

The aim of this study is to investigate the oral effect of chronic chewing of Khat on the oral mucosa.

#### **Material and Method:**

One hundred and twenty males were examined by the researchers in the consultant dental school in Damar University in Yemen to determine the relation of khat usage to presence of oral tissue changes. The questionnaire

included personal information (age, sex) and information about amount, frequency, duration (daily use and number of years with habit) and site of keeping of Khat in the mouth. The intra oral examination was conducted using a light and mouth mirror and disposable tongue depressor.

Oral examination is only a screening and not a complete dental examination. The lesions were easily detectable clinically and were graded by a modification of the method established by Axell associates in the following manner<sup>(11)</sup>.

**Degree I:** Symptomatic lesion with color similar to the surrounding mucosa with slight wrinkling and no obvious thickening.

**Degree II:** A whitish or reddish lesion with moderate wrinkling and no obvious thickening and wrinkling.

**Degree III:** A red or white lesion with intervening furrows of normal mucosal

**Table (2):** Classification of lesions in 120 males.

Classification	Number	Present
Degree I	12	10
Degree II	6	5
Degree III	3	2.5

**Table (3):** Shows the degree of lesion according to age, duration, daily habit, and site of application.

No of patient	Age	No of years	Daily habit	Site of application	Degree I	Degree II	Degree III
66	30-40	10	Once a week	Mucobuccal fold	3		
35	40-50	20	Twice a week		2	3	1
19	50-60	30	Three days a week		7	3	2

color obvious thickening and wrinkling.

The population applied a questionnaire with selected questions, site identify, the no. of years with habit, daily exposure site of application.

## Results:

The total sample of 120 males admitted to using chewing Khat all patients between 30-60 years of age and using chewing Khat 10 years ago, twice a week mostly they hold in the buccal fold for a period of 4-6 hours.

Table (2) shows the classification of lesion in 120 males with mucosal changes, From 120 males 10% showed normal colors, 5% from 120 showed mild whitish or reddish and 2.5% showed red or white lesion with separate normal colors.

## Discussion:

The practice of placing a small amount of chewing Khat in the oral cavity and leaving it in place extended period of time (4-6 hours) appears to be finding its way to describing the oral changes associated with teeth and periodontal tissue as well as oral mucosa.

Few studies<sup>(12)</sup> have been done on this subject, little information are available, results from this study show effect of Khat on oral tissue specially the mucobuccal fold and it is obvious in those different age group specially increase with daily habit exposure, duration period.

## Conclusion:

It has been shown from this study Khat had relation with oral tissue changes.

Red lesions or white lesions were significantly elevated with age of the patient, duration of period, Khat uses, site of application and daily use. People on Khat are smoking so I suggest this study need further investigation on saliva flow and combination use Khat and cigarette smoking for evaluating the effect on oral cancer.

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