

University of basrah  
College of pharmacy  
Department of pharmaceutics  
Preparation and evaluation of mucoadhesive  
viscous gel for xerostomia

By

Nooraldeen Sabah

Rafal Emad

Supervisor

Dr. mohammed sabar Al\_Lami

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## Introduction •

The prevalence of xerostomia is high among the general population, •  
affecting 14-46% of the adult

population, women more often than men. Xerostomia is defined as a •  
subjective feeling of dry mouth that is often, but not always, the result of  
hyposalivation. Xerostomia may be caused by many medical issues

and influencing factors, and has a broad impact on many functions •

including difficulties in speaking, swallowing or eating, a reduced or altered •  
taste sensation, atrophy

of mucosal tissue with pain, demineralisation of the teeth, and occurrence •  
.of secondary infections

.Xerostomia also negatively impacts on quality of life •

Long-term causes of dry mouth include chronic diseases (diabetes, •  
Sjögren's syndrome, Parkinson's

disease, rheumatoid arthritis, etc.), disorders of the parotid glands, •  
malignancies in the head and

neck region and their treatment, and head and neck surgery or radiation. •

Thus, the patients

suffering from xerostomia need to symptomatic relief, There are many symptom-relieving agents available, but the efficacy of available therapies is often described in populations with post-radiotherapy xerostomia. While this is certainly an important group on which to focus, all patients with xerostomia independent of the underlying cause, experience a negative impact on their quality of life

A newly-formulated mouth gel has been developed, aimed at relieving the symptoms of dry mouth in adults with xerostomia, independent of the underlying cause. Mucoadhesive dosage forms are able to interact with the mucus gel layer, which covers the epithelial surfaces of the major absorptive areas in the human body. Mucoadhesion in general can be defined as an attractive interaction between a mucoadhesive material and the respective mucosal surface. Commercially available oral lubricants contain mucoadhesive agents, which generally increase the viscosity of the formulation

## Methods

:Firstly we must prepare 3 formula of different conc of polymer

: Formula 1 must contain

Nacl 0.087 gm

Kcl 0.06 gm

Na benzoate 0.01 gm

Kh2 0.03 gm

K2h 0.08 gm

Hpmc 0.1 gm

:Formula 2

Kcl 0.06 gm

Na benzoate 0.01 gm

Kh2 0.03 gm

K2h 0.08 gm

Hpmc 0.2 gm

:Formula 3

Kcl 0.06 gm

Na benzoate 0.01 gm

Kh2 0.03 gm

K2h 0.08 gm

Hpmc 0.3 gm

So we take 3 clean beakers and put in each one (50ml) of warm water and then add the electrolyte that mentioned above related to each formula and then add HPMC (and shaking if needed) . After dissolved complete the volume with another 50ml . warm water

After prepare these formula we take 2 ml of each formula and put it in test tube . (..adding to each tube 2 drops of crystal violet dye (by dropper

So, we take one drop by using dropper also from each test tube and put it on agar plate (agar plate is in horizontal mode) after putting the drop on it , We put it in a . vertical mode and calculate the time of adhesion of each formula on agar plate

We also take 3 different human saliva samples and also calculate the time of adhesion of each by taking 3 test tubes and put 2ml of saliva samples in each of 3 tubes and put one drop of crystal violet on each and then , we take one drop by using dropper also from each test tube and put it on agar plate (agar plate is in horizontal mode) after putting the drop on it , We put it in a vertical mode and calculate the time of adhesion of each human saliva sample on agar plate

## Result

In experiment number 1 compare between CMC and HPMC and three sample from human saliva

Sample	Time
CMC	15 sec
HPMC	1min
Sample 1 (human saliva)	25sec
Sample 2(human saliva)	18sec
Sample 3 (human saliva )	19sec

In experiment number 2 compare between three from HPMC and three sample from human saliva

Sample	Time
Formula 1(0.1)	4.39sec
Formula 2(0.2)	6.75sec
Formula 3(0.3)	3.86sec
Sample 1(human saliva)	5.79sec
Sample 2(human saliva)	4.79sec
Sample 3(human saliva)	4.33sec

In experiment number 3 compare also between three HPMC and three sample from human saliva

Sample	Time
Formula 1(0.1)	3sec
Formula 2(0.2)	5sec
Formula 3(0.3)	8sec
Sample 1(human saliva)	6sec
Sample 2(human saliva)	4sec
Sample 3(human saliva)	8sec



In experiment number 4 compare also between three HPMC and three sample from human saliva

Sample	Time
Formula 1(0.1)	6sec
Formula 2(0.2)	8sec
Formula 3(0.3)	12sec
Sample 1(human saliva)	7sec
Sample 2(human saliva)	9sec
Sample 3(human	13sec

## Discussion

saliva from aspect viscosity and use in artificial saliva, HPMC because similar human also we need

electrolytes to become similar human saliva, in our experimental measurement viscosity and adhesion

of HPMC and also CMC and compare with human saliva this occur by mucoadhesion (texture analysis) and agar.

We in our experimental compare between time to HPMC with time of saliva . in case time of saliva faster

We must decrease concentration of HPMC and if time Of saliva is slow we must increase concentration of HPMC.

There different between same sample from where time

Due to different drops falling , error in technique and different in concentration