# الآية

قال تعالى:

#### بسم الله الرحمن الرحيم

الله و الله مَ لُو الله و الله و و مَ دُلُهُ و لِكَرِمِوش ْ كَ الْهِ فِيهَا مِصْدِبَاحُ الله مِصْدِبَاحُ في

ڒؙڿؘٳڿٙڐٟڵڵؙؖڿۘٳڿٙڰؙؙٲؘٮۜٛڲؘۏ ٤ٛٮڋؙڔٞۑٞۨؽۅۊؘٮؙڝؙڹۺۜڿڔؘۿؙٟڹٳڔؘػڒ؋ۣٞۑ۠ڎؙۅۮٙڵٳٚۺۯۨڣۣؖ؋ٟٙڵۼؘڕ ۠ؠڔۘؾٙ؋ٟ ڽڬٵۉؙٙۑ۠ڎؙڮٙڸٝۻۄۼۘڴؚۅٛ ڶؘؘؘؘؘؘٛٚٚۄٛ۠ڛڛؙؙ۠؋ؙۮٙٳڕٞٷڔٷٵ۫ۮۏڔٵؖؽۏۅڔٟٵؖؽۿۮؚڸڛٚؖٵٞڷؚڎؙۅڔؚڡؚڹ ٛڽۺۮٵؿؙ

وَ يَضْ ر ِ بِلِللَّهُ لَا أَن مَدْ اللَّذَ اللَّهُ اللَّهِ اللَّهِ اللَّهِ اللَّهِ اللَّهِ اللَّهُ اللَّه

صدق الله العظيم

سورة النور، الآية (35)

# **Dedication**

To our parents,

**Family** 

and friends.

Acknowledgement

Firstly of all thanks for Allah, then we would like to thank Dr. Adil Alhaj, finly we would to thank our family and friends for their great effort to complete this study.

**Table of contents** 

Title	Page No
	8

الآية	I	
Dedication	II	
Acknowledgement	III	
Table of content	IV	
List of table	VII	
Abstract	VIII	
مستخلص الدراسة	IX	
Chapter or	1e	
Introduction		
1.1 Natural of silica	1	
1.2 Occurrence	1	
1.3 Names of silica	2	
1.4 Classification of Silica	3	
1.5 STRURCTUR OF SILICA	5	
1.6 Physical PROPERTIES	5	
1.7 Solubility in water	5	
1.8 Chemical properties of Silica	6	
1.8. A. Chemical Reaction	6	
1.8. B Alkali–silica reaction	7	
1.8. C Self-catalyzed water reactions with	9	
silica		
1.8. D: Investigation of the states of water	9	
and OH groups on the surface of silica		
1.9. Silicification in sorghum	16	
1.1 0. Silica in corn	17	
1.1 1. Applications of silica	18	
1. 11.A. Porosity	18	

1.11. B Active surface	19	
1.11. C. Hardness	19	
1.11. D .Particle Size	20	
1.11.E.Viscosity and thixotropy	20	
1.11. F. Uses of Silica	20	
1.11. F.1. Precursor to glass and silicon	21	
metal		
1.11. F.2. Food and pharmaceutical	21	
applications		
1.11.F.3. Other Uses	21	
1.11. G. Health effects of Silica	22	
Chapter two		
Experimental		
2.1 Materials and equipments	24	
2.1.1 Materials	24	
2.1.2 Equipments	24	
2.2 Methods	24	
2.2.1 Sample preparation	24	
2 Extraction of silica	25	
3 Characterization of Silica	25	
Chapter three		
Results and Discussions		
3.1 Preparation of silica	26	
3.2Characterization of Silica	27	
3.2.1Corn Silk	27	
3.2.2 Corn cock	28	
3.2.3Corn leaves	30	

3.2.4 Sorghum husk	31	
Chapter four		
Conclusion and recommendations		
4.1 Conclusion	33	
4.2 Recommendations	33	
References	34	

### List of table

Table	Page No
Fig 1. 2.curves of the amorphous	11
nanosilica .	
Fig 1. 3. FT-IR spectra of the	12
amorphous nanosilica	
Fig1. 4. The schematic diagram of	15
dehydration process at different	
temperature	
Figure 3.1 shows the silica spectra	27
present several frequency regions in	
corn silk.	
Figer3.2 showed silica spectra	28
percent several frequency regions	
in corn cock.	
Figer3.3 showed silica spectra	29
percent several frequency regions	
in corn leaves.	
Figer3.4 showed silica spectra	31
present several frequency regions in	
sorghum husk.	

## Abstract

Silica was extracted as sodium silicate from Corn plant and Sorghum bicolor ashes using a solution of 1M sodium hydroxide then precipitated by a solution of 3M Nitric acid by a sol-gel method. The percentage of silica was found high in corn cock and low in sorghum. The produced silica products were characterized by FT-IR spectrometric analysis which emphasized the presence of functional peaks of silica.

مستخلص الدراسة:

استخلصت السيليكا على هيأة سليكات الصوديوم من الذرة الرفيعة والذرة الشامية باستخدام محلول هيدروكسيد الصوديوم واحد مولاري ثم رسبت بمحلول حمض النتريك ثلاثة مولاري بطريقة السيليكا جل وجدت النسبة المئوية للسيليكا عالية في الذرة الشامية و منخفضة في الذرة الشامية شخصت نتواتج السيليكا المستخلصة بواسطة مطيافية الاشعة تحت الحمراء التي اوضحت الزمر الوظيفية الخاصة بالسيليكا.