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RESEARCH ARTICLE

Isolation of Silica from Some Species of Diatoms in Iraqi Water

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Abstract

We obtained these diatoms species growth from diatoms (*Nitechia acuta*, *cocconeis pediculus*, *Nit dissipata, stephanodiscus astrea, syndra ulna, Diploneis*).According to scanning electron microscope, the SiO 2 morphologies of having microspores and fibers in the surface of 59.81 m 2 /g. All results refer that the basilica specimens get found in this study. The prepared basilica material having Porous structures which its ability, it can be used in other industrial applications.

Introduction

They have ability to using of O2, photosynthetic organisms (with several exceptions of colorless members undoubtedly related to pigmented forms [1]. Living microorganisms can to be vital substances Nanostructured Biomaterials through its capacity for Bioaccumulation and bio mineralization [3]. The three dimensions Nanostructured porous freestyle brings paramount function [4]. The diatom basilica is a type of ripped structured nanomaterial's [5]. The diatom basilica is to possession specifications of. It making them enters into [6]. These porous silica materials are in [4].

Material and Methods

Preparation of Ditom Sample

Fresh water sample were collected from different sites from Al-hilla river contain different algae. Order to select the diatoms from these samples, by the series is a relief to samples, and there for ease of operation culturing to diatoms [7].

Figure 1: Live Diatoms living

Culturing Media

Media are consist there are predominating. Making ready as Stock Solutions.

The media, which is (Freshwater Bacillariophyceae), is called getting [8] According to the table:

Table 1: Media of diatoms

Reagents	Per Lite
Ca(NO3)2* 4H2O	20 mg
KH2PO4	12.4 mg
MgSO4* 7H2O	25 mg
NaHCO3	15.9 mg
EDTA FeNa	2.25 mg
EDTA Na2	2.25 mg
H3BO3	2.48 mg
MnCl2* 4H2O	1.39 mg
(NH4)6Mo7O24* 4H2O	1.0 mg
Biotin (Vitamin H)	0.04 mg
Thiamine HCl (Vitamin B1)	0.04 mg
Cyanocobalamin (Vitamin B12)	0.04 mg
Na2SiO3* 9H2O	57 mg
pH ¼ 6.9	

From all these materials taken stock solutions in quantities [9] (Figure 2).After then addition 50 ml from algae (ditome) to the media (150 ml) order to obtaind 250 ml miture, after 7-9 days another adition from media 250 ml to the previous mixture, to become 500 ml.

After another 7-9 days too adition 500 ml from media, to obtaind 1 litter. In all stage ago we operate ventilation to culturing. Under aeration phase [10].The specie which were shown (Nitechia *acuta*, *cocconeis pediculus*, *Nit dissipata*), Continued to grow.

Chemical Treatment

Will be removal organic mass from process [11] and the acid (HCL) was chosen as common solvent [12].

There are announce solvents effective in organic material lifting [13].

So, will be mass removal and the remaining is dark green diatom samples.

At 600°C for 0.5 his enough to degrade the remnants of sinfulness. (Figure 5)

Ending test: scanning electron microscope order to silica pores.

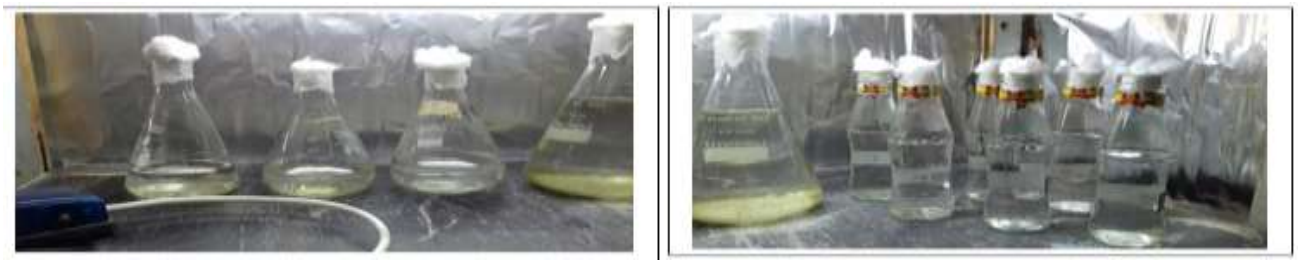

Figure 2: Culturing of diatom

Figure 3: Culturing of diatom after grow thing

Figure 4: Culturing of diatom after centrifuge

Resulting and Discussion

The result of the extraction of (Biosilica) was in the form of (powder) (5 mg /500 ml), which is the last stage before the examination (Figure 5).

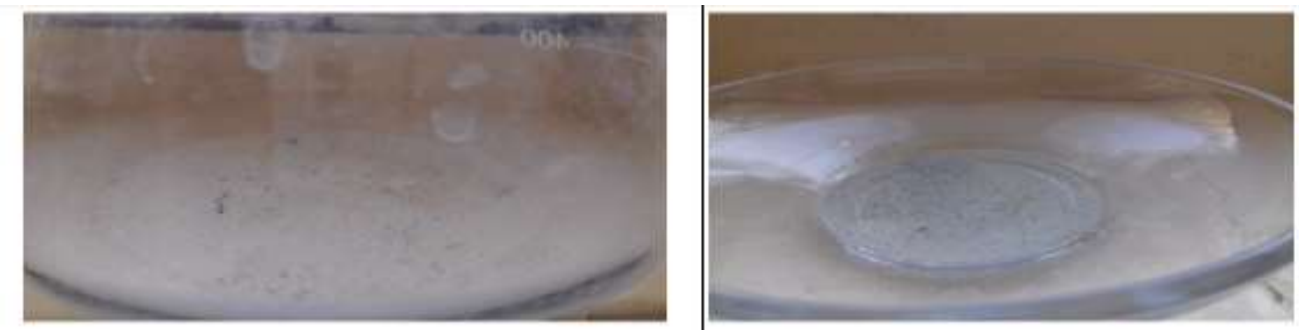

Figure 5: After treatment (chemical and backing)

Then they went to solvent this border in ethanol and It is placed on the metal plate Special for the electron microscope to take SEM image (Quanta 450 FEI USA) in (University of babylon, College pharmacy), according to the results and readings and images of the electron microscopy, It was figures of basilica Differentiation and varied in shape and size from diameter prose (104.1, 100.5, 106.2 nm), The length of the component plates for Diatom, Where the diameter of small plates (243.4 ,409.2 nm), the reason of difference in size and shape returned to type of ditom which returned to The reproductive speeds of different diatoms in collection samples (Figure 1) [14]. Results showed Existence three type from diatoms (*Nitechia acuta, cocconeis pediculus, Nit dissipata, stephanodiscus astrea, syndra ulna, Diploneis*) order to electron microscope image [15]. The using inorganic acid (HCL) orders dissolve organic masse to diatom, and permanence skeletal (basilica) [16].

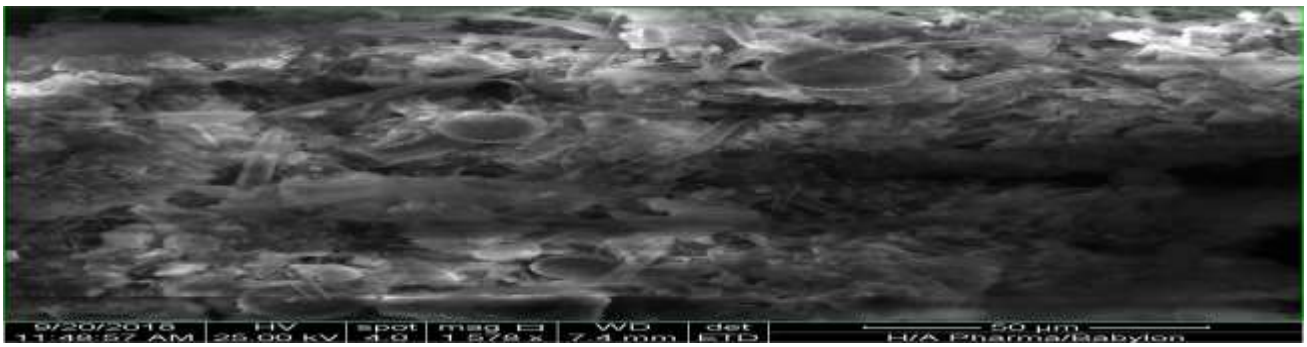

Fig.6: SEM images of (*Nitechia acuta, Cocconeis pediculus, Nit dissipata, Stephanodiscus astrea, Syndra ulna*,) raw diatom from fresh water

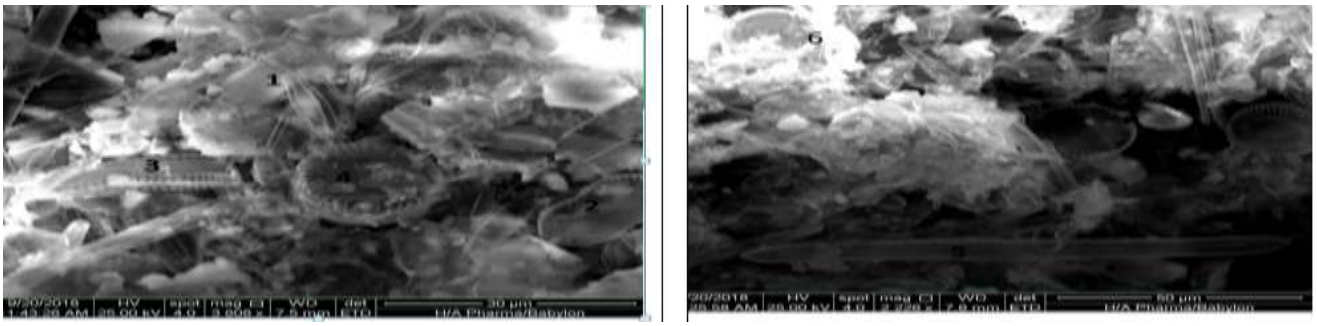

Fig.7 : SEM images of (1-*Nit dissipat*), (2- *Diploneis* 3- *Syndra ulna* 4- *Stephanodisus astera* 5- *Nitechia acuta* 6- *cocconeis pediculus*) raw diatom from fresh water

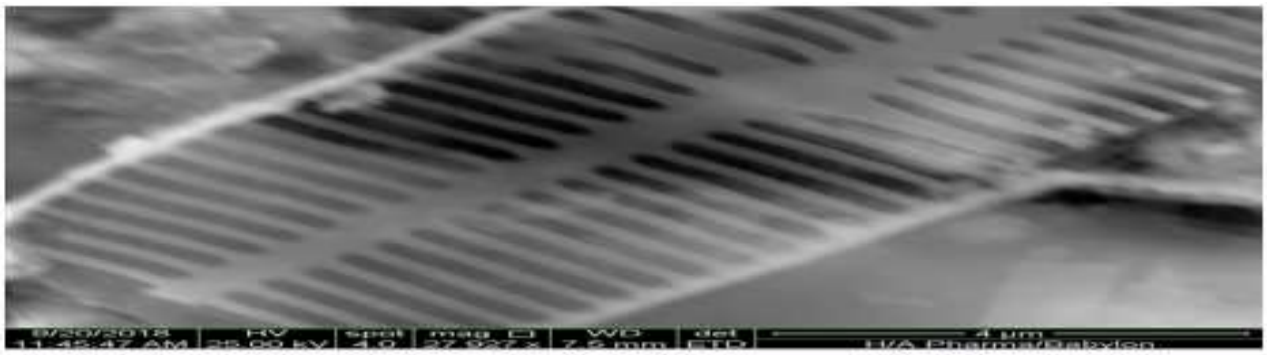

Fig.8: SEM images of basilica in Syndra *ulna* by Small diameter unit

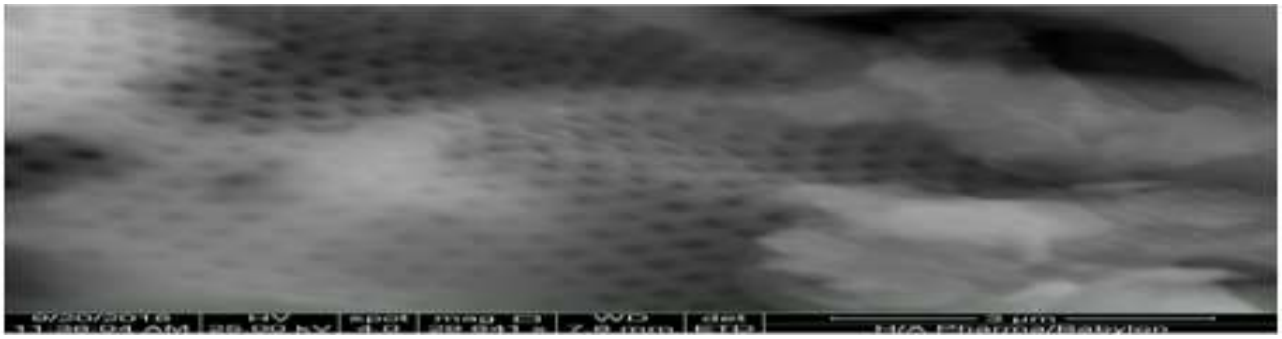

Fig.9: SEM images of basilica in *Cocconeis pediculus* by Small diameter unit

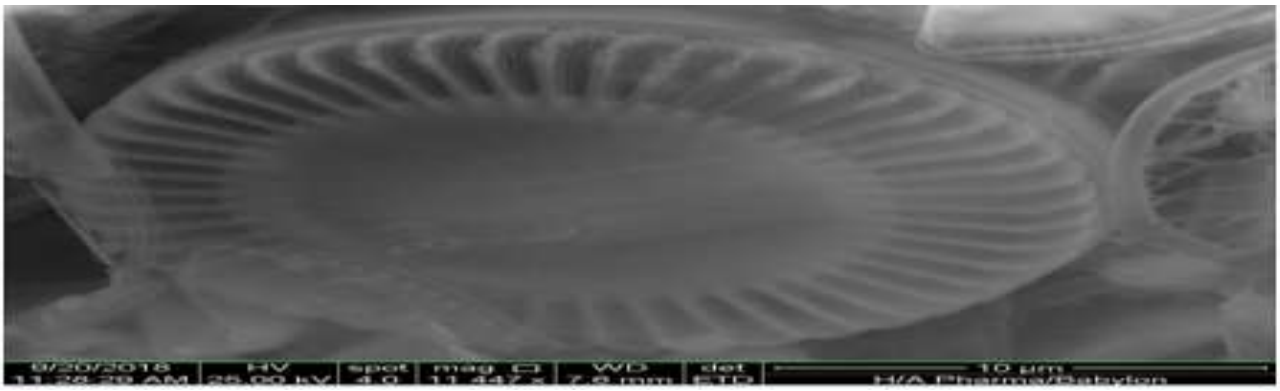

Fig.10: SEM images of biosilica in *Stephanodisus astera*by Small diameter unit

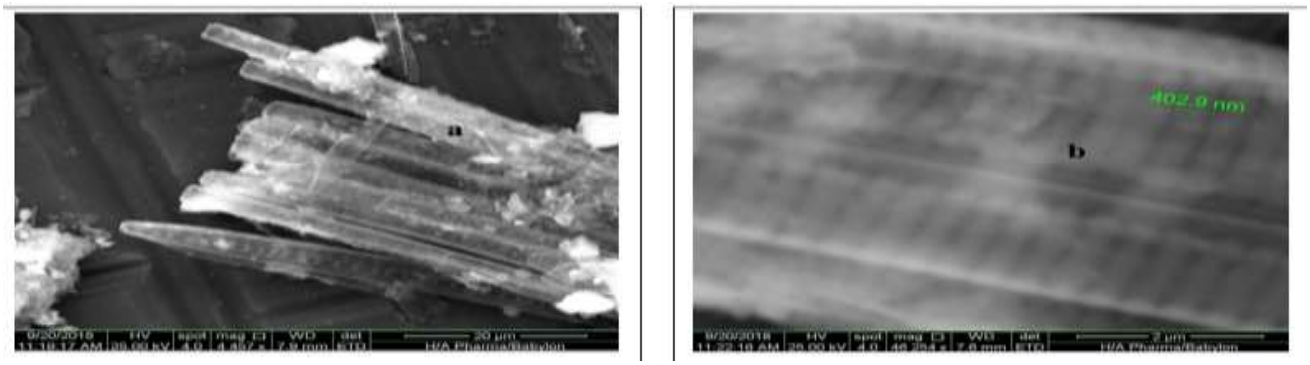

Fig.11: (a). SEM images of biosilica in *Stephanodisus astera*by and(b). Small it diameter unit 402.9

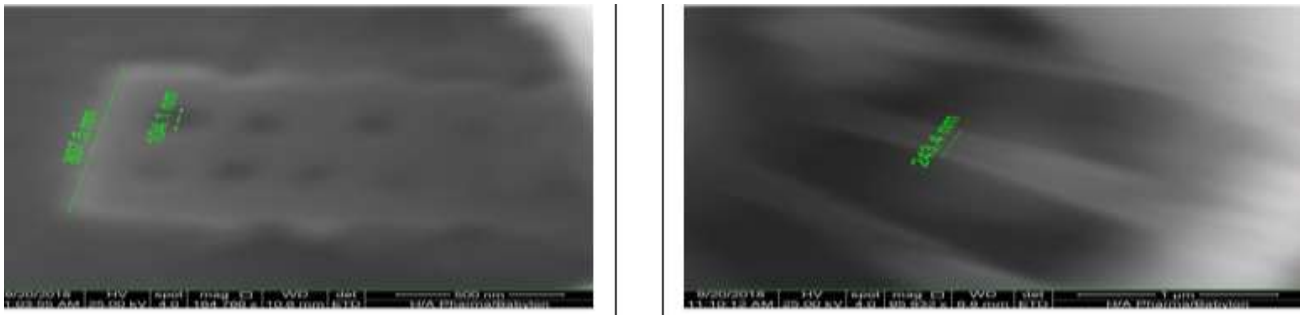

Fig.12: (a). SEM images of biosilica Small it diameter unit

Today, the great magnitude, acidification, and eutrophication of aqueous ecosystems [17].Diatoms are much powerful, comprise their significant to conduct [18]. Diatoms show a very, these species, with rich for their survival, were found amply in Iraqi waters, cell mark, cell decisiveness, difference [19].

Conclusion

In this study, standard perspicuous basilica samples were swimmingly making ready from fresh water diatom biomass.

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