International Journal of Research
Available at https://edupediapublications.org/journals
e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 04 Issue 10
September 2017

# Role of Camel's Milk in Growth Rate of *Chlorella* Sp

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**Abstract:**

*The main objective of this study is examine the effect of camel's milk against growth of Chlorella sp. the algae farms were divided into four groups as following: the first group (I) is the control group, contained 100 ml from Chlorella sp. algae, the second group (II) contained 100 ml of Chlorella sp. alga with 1 ml of camel's milk, the third group (III) contained 100 ml of Chlorella sp. alga with 3 ml of camel's milk and the fourth group (IV) contained 100 ml of Chlorella sp. alga with 5 ml of camel's milk. All groups were noted during the time periods (the first day , the second day, the third day, the fourth day, and the fifth day). The results showed the camel's milk caused a significant increase($p<0.05$) in the rate of growth of alga over a period the experiment.*

Keywords: Chlorophyta, *Chlorella* Alga, Camel's Milk.

Introduction:

Chlorophyta are a very big group of organisms and represent relics of the oldest photoautotrophic vegetation in the world that occur in freshwater ,marine and terrestrial habitats (Mundt and Teuscher, 1988).

*Chlorella*, a unicellular organism that is a genus of chlorophyta, like all chlorophyta, Chlorella is a Eukaryote and therefore have all of the membranous organelles of eukaryotes. Known for its underwater habitat, (Ditty et al., 2003 and Saadi and Suleiman,2006).

Chlorophytal secondary metabolites represent a vast diversity of structures and have been isolated from a number of chlorophytal genera from different geographical locations. During the last two decades, chlorophytal secondary metabolites have attracted the attention of researchers mainly due potential therapeutic use of several secondary metabolites include a range of compounds showing antibacterial and animal toxicity, antifungal, anti-inflammatory, antimalarial, antiprotozoal, antituber-culosis, antiviral and antitumor (Gademann and Portmann, 2008; Mayer *et al*., 2009)

In addition to the role of chlorophyta in the application of biotechnology in the production of hydrogen gas and the production of ammonia and production of enzymes andpharmaceutical products and use food protein for the treatment of heavy water and the excretion of toxins and

their impact on the environment in addition to its role in the analysis of crude oil and some of its derivatives to simple compounds non-polluting (Kumazawa and Mitsui, 1989; Kostreba, 2001; Saadi and Suleiman,2006)

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The camel's milk is characterized immune-ological advantages unique, since it has a Good quality of proteins of the preventive efficacyagainst bacteria and viruses such as lactoperoxidase, lysozyme and as well lactoferrin. It has an important role in reducing the ability of germs because of injury,inhibition of enzyme cysteine protease found in bacteria and viruses as well as some parasites, the milk also contains a high concentration of minerals(Sodium, Potassium ,iron ,copper ,zinc and magnesium) and vitamins A, B2,C and E (Ohashi et al., 2003; Kamal etal., 2007 ; Al-Hashem et al., 2009).

The aim of the study to investigate the role of camel's milk in the growth of moss through by addition of different concentrations of milk to the farmer of *Chlorella* sp.

**Materials and Methods :**

a) Isolation and purification of algae

Isolated and scrubbed algae according to (Stien,1973), as was access to unialgal cultures were then purified for the purpose of obtaining axenic cultures depending on the method of (Al-Arajy, 1996) and then diagnosed based on )Desikachary,1959; Prescott, 1975 and Wilson and Demmig-Adams,2007).

Diagnosis Species of Algae:

The following sources adopted in the diagnosis of species of algae used in the study. (Gowda *et al*, 2004) Where.it.Was.isolated.algae Classified and described below

Division: chlorophyta (green algae)

Class: chlorophyceae

Genus: *Chlorella* sp.

b) Development and propagation of algae

Algae were grown using a the middle Chu-10 axis by (Al-Arajy, 1996) and after obtaining sufficient amounts transferred to the 100 ml bottles filled with 70 ml of the former the middle and incubated at a temperature (25 ±3) ˚ C .

c) Measuring the rate of growth

The growth rate of algae counted directly by Chamber Slide (Coombs *etal.*, 1986).

d) Camel's milk

Milk samples were collected early in the morning from camel farm in the Al-Nassiriya city, Thi-Qar province, Iraq. Milk was collected from camel by hand milking as normally practiced by the farmers. The Samples were collected in sterile screw bottles and kept in cool boxes until transported to the laboratory.

e) Experimental Groups

Different concentrations of camel's milk and added to the algal farms which were divided into four groups as following: Group I : control group, contained 100 ml from *Chlorella* sp. only. Group II : contained 100 ml of *Chlorella* sp. alga with 1 ml of camel's milk (1%). Group III : contained 100 ml of *Chlorella* sp. with 3 ml of camel's milk (3%). Group IV : contained 100 ml of *Chlorella* sp. with 5 ml of camel's milk (5%).

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Results:

The results of the current study showed in figure (1). The results indicated the camel's milk caused a significant increase($p< 0.05$) in the growth of algae *Chlorella* for the duration of the experiment with different concentrations of milk (1, 3and 5ml/100ml of farms) compared with the control group . The highest rate of growth of algae on the first day in group(III). Results showed the first day a significant increase ($p< 0.05$) in the growth of rate of *Chlorella* in groups (II,III and IV) compared with group (I) after one day of treatment with different concentrations (1 %,3 % and 5 %) of camel's milk . After second day of treatment , the results indicated a significant increase ($p< 0.05$) in the growthof rate of *Chlorella* in groups (II,III and IV) compared with control group (group I) , Also , there was a significant increase ($p< 0.05$) in the growth rate groups(III) and (IV) compared with group(II) . After third day of treatment , the results indicated a significant increase ($p< 0.05$) in the growth of rate of *Chlorella* in groups (II,III and IV) compared with control group (group I). After fourth day of treatment , the results indicated a significant increase ($p< 0.05$) in the growth of rate of *Chlorella* in groups (II,III and IV) compared with control group (group I) After fifth day of treatment , the results indicated a significant increase ($p< 0.05$) in the growth of rate of *Chlorella* in groups (II,III and IV) compared with control group (group I), and confirmed by the statistical analysis of the existence of a positive relationship between the number of cells and increasing concentrations of camel's milk.

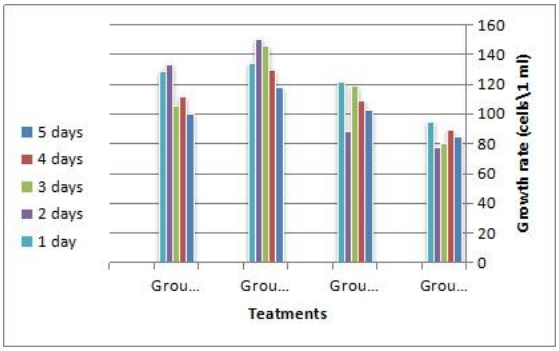


figure 1 : Role of camel's milk in growth rate of *chlorella* sp

**Discussion :**

Algae are many benefits as a source for the production of many materials economically important, which encouraged the cultivation and production of biomass, has been used for the production of pharmaceuticals, cosmetics different materials other industrial as well as animal feed and food additives for human food (Grima et al., 1990). As it raises to the surroundings of many materials, such as simple sugars and multiple, alcohols and enzymes, and some of which secreted material impact of anti-bacterial, fungi and tumors (Moore et al., 1996).

The increase of growth rates of *Chlorella* sp. may be attributed to supply of algae with nutrients and minerals important for growth, where is the camel's milk is rich in minerals (sodium, potassium, iron, copper, zinc, magnesium) and vitamins (A, B2, C, E) also contains a high concentration of a protein similar to insulin (Kamal et al., 2007; Al-Hashem et al., 2009). These materials play a fundamental role in the increase of cell divisions and increase the breadth and elongation of the cells and thus increasing the effectiveness of the physiological

processes photosynthesis thus, a supply algae carbohydrate materials manufactured in this process and this in turn improves the rate of growth (Sahaf , 2000) .

**References:**

1-Al- Hashem, F.; Dallak, M.; Bashir, N. and Abbas,M. Camel's milk protects against cadmium chloride induced toxicity in white albinorats. American Journal of Pharmacology and Toxicity.; 4(3):107 –117 (2009).

2. Al-Saadi, Hussein Ali and Sulaiman, Nidal Idris. (2006). Science algae phycology. Dar Yazouri scientific publication and distribution. Amman / Jordan from 0.16 to 17.

3. Kostreba, L. Oil spill remediation efforts in the middle east. Internet file: IA: Oil spill remediation efforts in the middle east, (2001).

3. Moore, R.; Smith, D.; Patterson, M. and Susan, L. The search for new anti-tumor drugs from blue-green algae. Curr. Pharm. Design, 2:317-330 (1996).

4. Al-Arajy, M. Studies on the mass culture of some micro algae as food for fish Larvae. ph. D. thesis, Basrah. Univ. (1996).

5. Desikachary, T. V. Cyanophyta Indian .Concil of Agricultural Research, New Delhi, India (1959).

6. Ditty, J.; Williams, S. and Golden, S. A chlorophytal circadian timing mechanism . Annu. Rev. Genet.; 37:513 – 43 (2003).

7. Gademann, K. and Portmann, C. Scondary metabolites from chlorophyta : complex structure and powerful bioactivities. Curr. Org. Chem.,12:326- 341 (2008).

8. Grima, F.; Fernaandes, F. ; Camacho, F. and Chisti, Y. Bioreactors light regine , mass transfer and scalen . P. J. Biotech.; 70:231 – 247 (1990).

9. Kamal , A.; Salama , O. and El-Saied , K. Changes in amino acids profile of camel's milk protein during the early lactation .Int. J. Dairy. Sci.,2:226-234 (2007).

10. Kumazawa, S. and Mitsui, A. Photosynthetic Properties of Synchronously grown aerobic nitrogen- fixing unicellular cyanobacterium. In: Abst. Ann. Meeting of Amer. Soc. Microbiol. P268 (1989).

11. Mayer, A.; Rodrigue, Z. ; Berlink, R. and Hamann, M. Marine pharmacology in 2005–6 : Marine compounds with anthelmintic,antibacterial, anticoagulant, antifungal,anti–inflammatory, antimalarial, antiprotozoal, antituber-culosis and antiviral activities; affecting the cardio-vascular, immune and nervous systems, and other miscellaneous mechanisms of action. Biochim. Biophys. Acta., 1790:283 – 308 (2009).

12. Mundt, S. and Teuscher, E. Blue – green algae as a source of Pharmacologically – active compound. Pharmazie.; 43:809 – 815 (1988).

13. Ohashi, A.; Murata , E.; Yamamoto, K.; Majima, E.; Sano, E.; Le, Q. and Katunuma, K. New functions of lactoferrin and beta-casein in mammalian milk as cysteine

protease inhibitors. Biochem. Biophys. Res. Commum., 20:98-103 (2003).

14. Prescott, G. Algae of the Western great lake area. Ellion C., Brown Co. pub., Dugugue, Lowa, USA (1975).

15 Sahaf, H. Applied Plant Nutrition, Press House of Wisdom, Baghdad University, Ministry of Higher Education and Scientific Research, the Republic of Iraq, (1989).

16. Stein, J. R. Handbook of phycological methods. Cambridge Univ. press. Cambridge, UK. (1973).

17.Gowda, N. K. S.; Malathi, V. and Suganthi, R. U. (2004). "Effect of some chemical and herbal compounds ongrowth of Aspergillus parasiticus and aflatoxin production" .Animal Feed Science and Technology 116(3-4): 281-291.