ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 10, Issue, 08(F), pp. 34409-34410, August, 2019

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

EFFECT OF EXTRACT OF *CHLOROGLOEOPSIS FRITSCHII* ON THE GROWTH OF *HAPALOSIPHON*

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DOI: http://dx.doi.org/10.24327/ijrsr.2019.1008.3890

ARTICLE INFO

Article History:

Received 6th May, 2019
Received in revised form 15th June, 2019
Accepted 12th June, 2019
Published online 28th August, 2019

Key Words:

Chlorogloeopsis fritschii,
Hapalosiphon, autoinhibition.

ABSTRACT

Aqueous extract of *Chlorogloeopsis fritschii* on exponential growth phase (10 Days) was used to evaluate the effect on the growth of different selected strains of *Hapalosiphon*. On the basis of the results of the present observation it has been concluded that aqueous extract of exponential growth phase of *Chlorogloeopsis fritschii* shows stimulatory effect on the growth of most of the selected strains of *Hapalosiphon* such as *Hapalosiphon*-53, *Hapalosiphon*-350, *Hapalosiphon*-384 except *Hapalosiphon*-196 which shows inhibitory effect. *Chlorogloeopsis fritschii* also shows autoinhibition

INTRODUCTION

Algal allelopathy is a physiological phenomenon. The chemical produced or secreted by the alga can affect other alga in its vicinity and it also affects its growth and associated microbes. In past few years presence of variety of Cyanobacterial toxin have been reported. Maksimova and Pimenova[7] found formic, acetic glycolic lactic, pyruvic, and acetoacetic acid in the cultural medium during the growth of various strains of *Chlorella vulgaris* and *C. pyrenoidosa.* Grewick *et al*[4] reported toxins from marine blue-green alga *Microcystis* and *Oscillatoria*. The chemical nature of various algal toxins has been studied in detailed by Carmichael[1&2] Carmichael *et al*[3] Present study deals with an intention of understanding the effect of the extract of *Chlorogloeopsis fritschii* on the growth of selected strains of *Hapalosiphon*. Which is useful for the use of these strains as a biofertilizer in rice cultivation.

MATERIALS AND METHODS

Exponentially grown axenic cultures of selected strains of *Hapalosiphon* (10 days old) were utilized for inoculation into aqueous extract of *Chlorogloeopsis fritschii* (obtained from exponential grown blue-green algal strains in BG-11 Medium Stainer *et* al[9] after filtration (by pre sterilized Whatman No.1 filter paper in three replicates) each strain were kept under standard laboratory conditions (14/10 LD cycle, temp.28±2ºc al 4K lux light intensity provided by light florescent tube). The growth of different selected strain of *Hapalosiphon* was measured at 10 day in term of chlorophyll-a (µg/ml) in filtrate of *Chlorogloeopsis fritschii* was compared with respect to control (Nitrogen deficient medium). For the measurement of growth optical density of algal suspensions grown in different filtrates as well as control were measured at 665nm and 565nm using Systronic UV-VIS Spectrophotometer-104. Chlorophyll content was estimated with the help of methods described by Mackinney[6]

RESULTS AND DISCUSSIONS

Table Growth of different strains of *Hapalosiphon* in aqueous extract of *Chlorogloeopsis Fritschii*

Strains	Growth after 10 days		Growth %	
	In Control (- N medium)	In extract	Increases	Decreases
Haplosiphon -53	0.5838	0.723	23.8	-
Haplosiphon -196	1.1676	1.070	-	8.4
Haplosiphon -350	1.2093	1.807	49.5	-
Haplosiphon -384	2.1962	4.601	109.5	-

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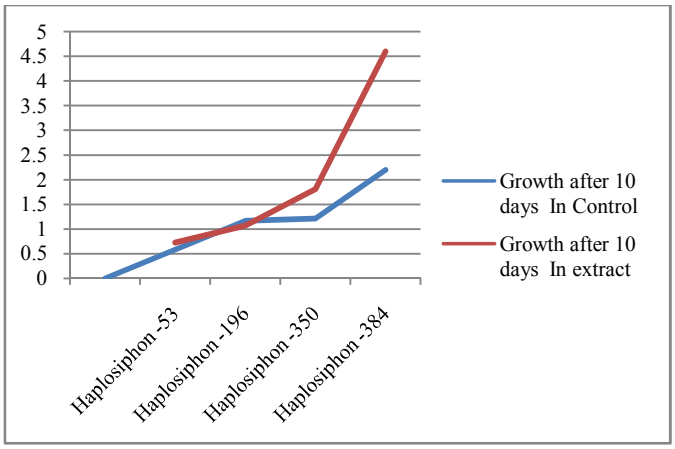

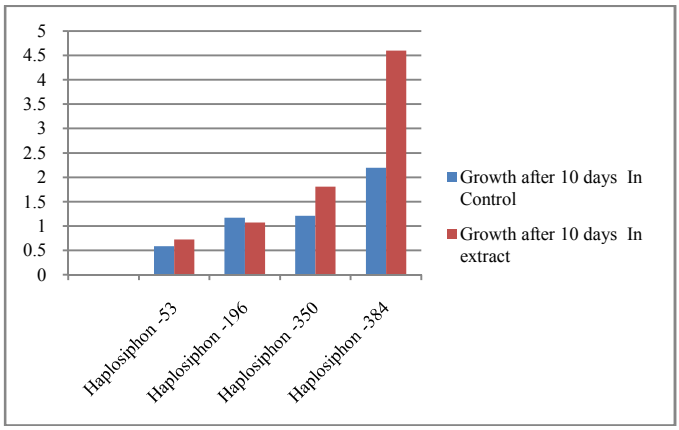

Fig Effect of *Chlorogloeopsis fritschii* extract on the growth of different strains of *Hapalosiphon* with respect to control

Extract of *Chlorogloeopsis fritschii* are beneficial to the growth of most of the selected strains of *Hapalosiphon* such as *Hapalosiphon*-53 *Hapalosiphon*-350, *Hapalosiphon*-384 and shows stimulatory affect There are a significant increase of growth as compared to control but *Hapalosiphon*-196 shows inhibition and less growth as compared to control in the extract of *Chlorogloeopsis fritschii*. *Chlorogloeopsis fritschii* itself also shows autoinhibition. In *Hapalosiphon* strains, the strain of *Hapalosiphon*-53, *Hapalosiphon*-350 and *Hapalosiphon*-384 shows autoinhibition but *Hapalosiphon*-196 shows autostimulation. Earliar *Monahan and* Trainor[8] found that filtrate of green alga *Hormmotila blennista* was autostimulatory and Jorgensen[5] found that *Nitzschi palea* formed as autotoic substance while *Asterionella formosa* formed substances that accelerate its growth. For the present observation it is clear that *Hapalosiphon*-196 itself is an autostimulation but in the extract of *Chlorogloeopsis fritschii* it shows inhibition while three other srtains of *Hapalosiphon*- i.e. *Hapalosiphon*-53, *Hapalosiphon*-350 and *Hapalosiphon*-384 itself an autoinhibitory but in the extract of *Chlorogloeopsis fritschii* it is autostiomulatary

It is clear from the present observation that the extract of *Chlorogloeopsis fritschii* is beneficial to the growth of most of the selected strains of *Hapalosiphon*

Acknowledgements

Authors are thankful to the Head, Department of Botany, University of Allahabad, for his keen interest and for providing necessary facilities.

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How to cite this article:

Raje Singh and Amita Pandey.2019, Effect of Extract of Chlorogloeopsis Fritschii on The Growth of Hapalosiphon. *Int J Recent Sci Res.* 10(08), pp. 34409-34410. DOI: http://dx.doi.org/10.24327/ijrsr.2019.1008.3890

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