Life Science Informatics Publications

Research Journal of Life Sciences, Bioinformatics, Pharmaceutical and Chemical Sciences

Journal Home page http://www.rjlbpcs.com/

RJLBPCS

ISSN 2454-6348

Original Research Article **DOI - 10.26479/2016.0105.02**

ISOLATION AND IDENTIFICATION OF HOUSE DUST MICRO-ALGAE FROM SANGLI DISTRICT

Padmaja M. Chougule*, Yogesh S. Andoji [1]

1. Department of Botany, Shivaji University, Kolhapur 416 004 Maharashtra, India

2. Department of Botany, K.W.College, Sangli.416304, Maharashtra, India

ABSTRACT:

During present investigation 50 dust samples were collected from houses of those patients who suffers from nasobranchial allergy. Dust samples were collected with the help of vaccum cleaner and packed in sterilized polythene bags and cultured on Bolds basal medium (BBM) ammended with agar powder.The result showed that the members of Cyanophyceae are predominant on all micro-algae, followed by Chlorophyceae and Bacillariophyceae. *Aphanothece nidulans* were most dominant algal species over all which observedin 32 dust samples and causes several respiratory disorders to immuno depressed peoples.

KEYWORDS: House dust samples, micro-algae, immuno depressed peoples.

***Corresponding Author : Dr. Padmaja M. chougule**

Department of Botany, K.W.College, Sangli.416304, MS, India.

1. INTRODUCTION

House dust is mixture of diver's components that can cause different type of allergies. Micro-algae is important bio-component among that. The air borne microalgae constitute a source of respiratory hypersensitivity reaction in immuno depressed peoples (Schwimmer and schwimmer,1968). Except few researchers, very less attaintation has been paid towards house dust micro-algae. Berstein and safferman (1970) isolated viable 41 algal members from home dust. Lustgraff (1979) has studied the seasonal variation and frequency distribution of micro algae in house dust. So

during present investigation isolation and identification of micro-algae from houses of patients who are suffering from respiratory allergies were done in Sangli district.

2. MATERIAL AND METHODS

Total 50 samples were collected from different houses in Sangli city during November 2013 to October 2014. Dust samples were collected with the help of vaccum cleaner and packed in sterilized polythene bags. The bags were brought to laboratory and one gram each sieved dust sample was inoculated on Bolds basal medium (BBM) ammended with agar powder in sterilized petridish. The inoculated petridishes were incubated under tube light having 1000 lux capacity and temperature were maintained at 25 ± 2^0C. After 12 days of incubation period algal colonies were isolated and observed under microscope. The identification of micro-algae were done by using standard phycological mannuals (Desikachary, 1959; Sarode and Kamat, 1984; Fritsch, 1935)

3. RESULTS AND DISCUSSION

Table 1- List of micro-algae detected from house dust with with number of dust samples.

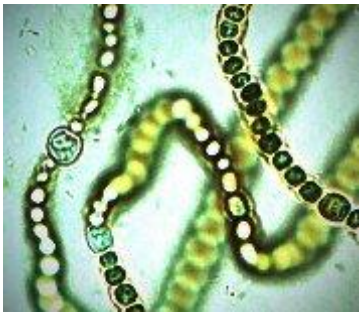
Sr. No.	Isolated microalgae	Class	Number of dust samples
1	*Calothrix geitonos*	Cyanophyceae	07
2	*Cylindrospermium spp.*	Cyanophyceae	03
3	*Aphanothece saxicola*	Cyanophyceae	06
4	*Gloeothece palea*	Cyanophyceae	04
5	*Aphanothece nidulans*	Cyanophyceae	32
6	*Ankistrodesmus falcatus*	Chlorophyceae	07
7	*Pinnularia sp.*	Bacillariophyceae	05
8	*Chlorococcum sp.*	Chlorophyceae	16
9	*Plectonema hansgiraji*	Cyanophyceae	05
10	*Phormidium jenkelianum*	Cyanophyceae	11
11	*Chlorella sp.*	Chlorophyceae	28
12	*Nostoc muscorum*	Cyanophyceae	19
13	*Hapalosiphon welwitschii*	Cyanophyceae	13
14	*Gloeocystis major*	Chlorophyceae	24
15	*Gloeocystis nigas*	Chlorophyceae	20
16	*Nitzschia palea*	Bacillariophyceae	06

Table 1 depicts 16 isolated micro-algae from home dust samples. It is observed that members of class Cyanophyceae are dominant over Chlorophyceae and Bacillariophyceae. Among 50 dust samples in 32 dust samples *Aphanothece nidulans* alga were found which is predominant over all and belongs to Cyanophyceae. Followed by *Chlorella sp.* Which found in 28 samples and *Gloeocystis major* found in 28 samples belongs to Chlorophyceae. Only two members of Bacillariophyceae were detected which include *Pinnularia sp.* which found in 05 samples and *Nitzschia palea* which found in 06 samples.

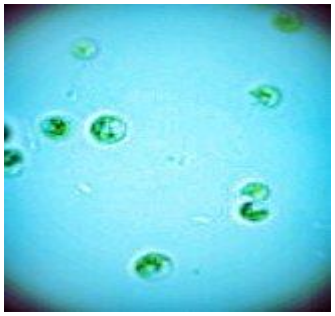
4. CONCLUSION

It is well known fact that algal members contains much amount of protein and they are responcible for respiratory diseases in human beings. During present investigation the detected algal members *like Aphanothece, Gloeothece, Calothrix, Chlorella and Scytonema* were reported by researchers as highly allergic members for immuno depressed peoples so it is concluded that home dust samples are enriched with variety of microbiota which is responcible for allergic diseases to human beings.

Fig.1-Microphotographs showing isolated algal colonies.



Nostoc muscorum



Chlorella sp.

Aphanothece nidulans

ACKNOWLEDGEMENT

The authors are thankful to Principal Dr. R.R. Kumbhar , P.D.V.P.college Tasgaon for providing lab facility during research work

REFERENCES

1. Bernstein, I.L. and Safferman, R.S. (1970): Viable algae in house dust. Nature.227 : 851-852.
2. Desikachary, T.V. (1959): *Cyanophyta* Monograph. Indian Counsil of Agricultural Research, New Delhi,686pp.
3. Fritsc,F.E. (1935): The structure and Reproduction of Algae Vol.I , University Press Cambridge,791.

4. Lustgraff, B.V.D. (1979): Seasonal abundance of algae and thermophilic fungi in house dust. Proc. *First Int. Conf. On Aerobio. Munich.* 165-169.

5. Sarod, P.T. and Kamat, N.D. (1984): Freshwater Diatoms of Maharashtra. *Saikrupa Prakashan,Aurangabad, 338.*

6. Schwimer M. and Schwimer D. (1968) , in Algae, Man and the Environment (edit. By Jackson, D.F.),279 (Syracuse Univ. Press, Syracause.)