

ALGAL BIOFOULING ON CERAMIC SURFACE

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Attempts were made to collect Algal samples in different months of the year. During the month of August algae found were *Gleotheca linearis*, *Ulothrix tennerima*, *Chlorella vulgaris*, *Closteridium lunula*, *Navicula gracilis*, *Stauroneis anceps var. hyaline*, *Scenedesmus dimorphs*, *Cyclotella menenghiana*, *Diatoma vulgare*, *Nitzschia palea*, *Chlorococcum humicola*, *Stauroneis phoenicentron var. crumenifera*. By this work, we found that use of ceramic tile is safer as compared to other surfaces because of less growth of algae.

Keywords : Aufwuch Biofouling; Phycoperiphyton.

Colonization of algae under submerged condition on surfaces is universal phenomenon. Though algae in its various forms have been observed growing on bare surfaces and as product of their continued growth on the surfaces have been reported as creating multiple problems in various situations. Those algae which are responsible for creating such unpleasant situations are termed as algal biofouling. These algae which are found on surfaces submerged in water are commonly termed as Phycoperiphyton, biofouling, aufwuchs, periphyton etc. Algae which are attached on surfaces have been understood by phycologists from time to time and assigned the term Phycoperiphyton for the first time by Behning¹. However, the same type of forms have been designated as periphyton by a number of workers²⁻⁷ and recognized these colonizers as miscellaneous assemblage, a loose term including all forms found adhering to surface.

Colonizing algae adding difficulties in water supply systems, reservoirs have been proved health hazards for the users by releasing toxic substances in the aquatic environment.

Adey & Vesser⁸ used ceramic tile to study marine coralline algae. A white marble surface serving as the floor of an observation well in one water treatment plant became overgrown with a continuous brown layer of *Achanthes*. The observation well was located on conduit carrying water from sand filters to clear well. The marble surface was brushed clean but the color returned again within two weeks⁹.

Clay tiles are considered by several investigators to be superior to rocks with respect to reduced sample variability^{10,11} and glass slides have not accurately reflected the Periphyton of same communities in biomass accrual or species composition³.

The city of Agra is situated at 27° 10' and 27° 13'

Northern latitude and longitude at 77° 54' and 78° 4' eastern edge of extensive plains of Yamuna River. The climate is characterized by dry and increasingly hot season from March to June, a warm period from July to September and dry and cold winters between October and February.

The work presented include the periphyton colonizing on ceramic surface which is commonly used in making sinks, water channels etc. the samples collected by the author were analyzed for various physical parameters like pH, temperature and light intensity. The temperature was recorded with the help of thermometer, light intensity with luxmeter and pH with pH paper (B.D.H.).

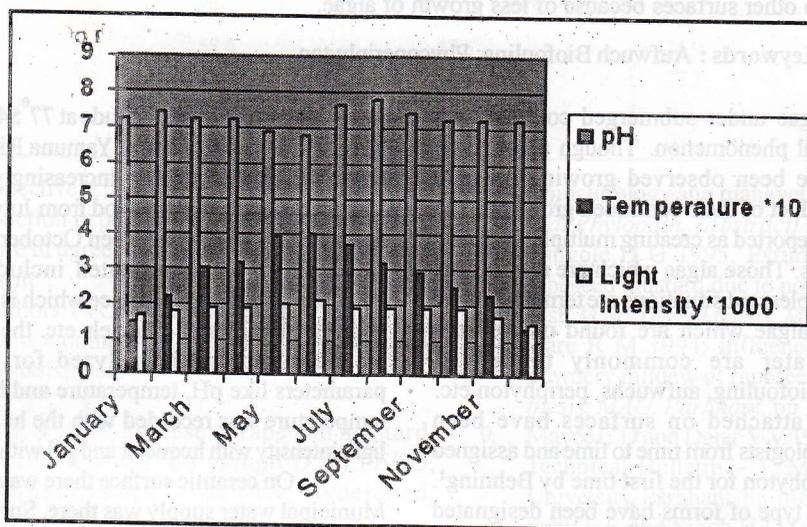
On ceramic surface there was no direct sunlight. Municipal water supply was there. Surface remains moist due to splashing water. pH found was 6.8 as minimum and 7.8 as maximum, temperature was 13°C as minimum and 40°C as maximum and light intensity was 1500 lux minimum and 2135 lux as maximum (Table-1, Fig.1.).

Attempts were made to collect Algal samples in different months of the year. No algae were found during the month of January to July and September to December. During the month of August algae found were *Gleotheca linearis*, *Ulothrix tennerima*, *Chlorella vulgaris*, *Closteridium lunula*, *Navicula gracilis*, *Stauroneis anceps var. hyaline*, *Scenedesmus dimorphs*, *Cyclotella menenghiana*, *Diatoma vulgare*, *Nitzschia palea*, *Chlorococcum humicola*, *Stauroneis phoenicentron var. crumenifera*.

On this surface Bacillariophyceae was abundant in comparison to Chlorophyceae where as Cyanophyceae was so small that it can be considered as negligible. On this surface algal growth was found only in rainy season. The water is used for domestic purposes hence the number of classes and species are restricted due to replenishing of water at short intervals or is in continuous supply and

Table & Fig. 1. Showing pH, Temperature and Light intensity.

Variables	January	February	March	April	May	June	July	August	September	October	November	December
pH	7.2	7.4	7.2	7.2	6.9	6.8	7.6	7.8	7.4	7.2	7.2	7.2
Temperature*10	1.5	2.2	3.0	3.2	3.9	4.0	3.7	3.2	2.9	2.5	2.3	1.3
Light intensity*1000	1.7	1.8	1.9	1.9	2.0	2.1	1.9	1.9	1.9	1.9	1.7	1.5



thus it is devoid of any organic pollution.

Hence, from the above discussion it is proved that ceramic tiles are better surfaces and having only 12 species of could grow on it.

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