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Effects of water velocity and different substrates on the growth of filamentous periphytic algae.

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This study was carried out to evaluate the effect of water velocity and different substrata on the growth of filamentous periphytic algae (FPA), occurring as dominant species in polluted streams and rivers. The experiment carried out in the artificial channel with nutrient-rich treated wastewater *in situ* coupled with the laboratory cultivation under different phosphorus concentrations. Water velocity and different types of substrate were manipulated in the experiment. The highest growth rate of FPA was observed at the water velocity of 10cm/s; the most suitable substrata for FPA growth were apparently the natural fiber net and wire net when evaluated at in-lab circulation water way and at pilot waterway *in situ*, respectively. When used wire net in the pilot waterway system which was manipulated in water velocity, the highest average growth rate of FPA was observed in 10cm/s, regardless of mesh size. In the substrata test, 20mm mesh net was the most suitable material for FPA growth in both winter and spring season, showing the highest biomass of 14.1 gDW/m² with the average growth rate of 1.20 gDW/m²/day (November) and 179.0 gDW/m² and 20.18 gDW/m²/day (March), respectively. On the other hand, the highest biomass and the average biomass was observed on the natural fiber net during in-lab experiment with 1.27 gDW/m².

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