

Manlika Srichomphu 2015: Influences of Winter Insolation on Growth Cyanobacteria in Oxidation Ponds for Community Wastewater Treatment at Royal LERD Project Site in Phetchaburi Province Thailand. Master of Science (Environmental Science), Major Field: Environmental Science, Department of Environmental Science. Thesis Advisor: Miss Thassanee Boonprakong, Ph.D. 113 pages.

This study aimed to investigate the influence of winter solar radiation on cyanobacteria growth in oxidation pond for Community wastewater treatment system of the King's Royally Initiated LaemPhakBia Environmental Research and Development Project, Phetchaburi Province. Average solar radiation wavelengths and cyanobacteria samples, including water samples were collected for two months (January to February 2014). The results found that solar radiation was steady through the winter period. The most wavelength of solar radiation was red wavelength, 621-750 nm. (3,499.8 watt/m²). The secondary wavelengths were 501-507 nm. (2,234.9 watt/m²) and 381-450 nm. (1,469 watt/m²), respectively. The cyanobacteria, which were found chlorophyll a, phycobilins and carotenoid in their cells, obtained the light and photosynthesis for energy synthesis and multiply their cells. The findings found cyanobacteria were increasing in winter and decreasing in summer. The cyanobacteria were found 11 species and the most number of cyanobacteria were found in oxidation pond no.2. The dominant species were 3 species, *Spirulina platensis*, *Microcystis aeruginosa* and *Oscillatoria* sp. The influences of cyanobacteria on water quality found that dissolved oxygen was above than saturation point when cyanobacteria bloom since photosynthesis. In addition, biochemical oxygen demand, suspended solids, total dissolved solids, ammonia and phosphorus concentration were above water quality standard in blooming stage.

Student's signature

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