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Abstract	:	Microalgae wastewater treatment technology has been identified as an economical solution for waste treatment and microalgae cultivation; however, the information regarding the cultivation technique as well as its growth, and pollutant removal in high strength wastewater are very scanty. Therefore, in this study an attached cultivation of <i>Chlorella vulgaris</i> and <i>Nannochloropsis oculata</i> on sponge's medium for palm oil mill effluent (POME) treatment was performed in downflow hanging sponge (DHS) reactor under a continuous mode system. The study shown that the <i>Chlorella vulgaris</i> had growing faster than <i>Nannochloropsis oculata</i> initially, and both species having almost similar maximum cell growth of 20.0 to 23.5 g/L for samples of middle sponge of the reactor. The <i>Chlorella vulgaris</i> attained maximal of 43% of lipid content with 0.6 g/L/d of biomass productivity rate. The pollutants removal efficiencies recorded for both species were in the range of 60.0 - 65.1% for COD, and 48 to 56% for color. Sponge was found to be suitable as a good material for the attachment of microalgae due to its large void and surface area provided. Thus, this study contributes towards greater feasibility in microalgae cultivation for lipid productions and as well towards environmental sustainability.