Effect of 2,4-dimethylamine and endosulfan on Chaetoceros sp. and Nannochloropsis sp. / Shia Kwee Luan.
EFFECT OF 2, 4-DIMETHYLAMINE AND ENDOSULFAN ON
Chaetoceros sp. AND Nannochloropsis sp.

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ABSTRACT

The effect of 2, 4-dimethylamine and endosulfan on Chaetoceros sp. and Nannochloropsis sp. were assessed in this study. The pesticides show adverse effect on cells density, photosynthetic pigments and oxygen production of the microalgae. The 48 hours EC$_{50}$ values of 2, 4-dimethylamine on Chaetoceros sp. and Nannochloropsis sp. was 143.22 mg L$^{-1}$ and 211.87 mg L$^{-1}$ respectively, while the 48 hours EC$_{50}$ values of endosulfan on Chaetoceros sp. and Nannochloropsis sp. was 33.612 µg L$^{-1}$ and 45.807 µg L$^{-1}$ respectively. 2, 4-dimethylamine shows strong inhibitory effect on photosynthetic pigments and subsequently caused lower oxygen production of the microalgae. The 48 hours EC$_{50}$ of endosulfan on the microalgae is comparatively lower than 2, 4-dimethylamine. The effect of endosulfan on the microalgae is mainly the cell wall rather than inhibiting the photosynthetic pigments. It is anticipated that, unregulated usage of pesticides will disturb the primary productivity of an aquatic ecosystem.
ABSTRAK

Kajian ini bertujuan untuk mengaji kesan kedua-dua pestisid 2, 4-dimethylamine dan endosulfan ke atas mikroalga marin Chaetoceros sp. dan Nannochloropsis sp. Kedua-dua pestisid ini menunjukkan kesan negatif ke atas populasi sel pigmen-pigmen fotosintetik dan produktiviti oksigen. Nilai EC₅₀ 2, 4-dimethylamine dalam tempoh 48 jam adalah 143.22 mg L⁻¹ dan 211.87 mg L⁻¹ bagi Chaetoceros sp. dan Nannochloropsis sp. masing-masing. 2, 4-dimethylamine memberi kesan negatif ke atas penghasilan pigmen-pigmen fotosintetik dan seterusnya mengurangkan produktiviti oksigen pada mikroalga tersebut. Di samping itu, nilai EC₅₀ ke atas rawatan endosulfan dalam tempoh 48 jam adalah 33.612 µg L⁻¹ dan 45.807µg L⁻¹ bagi Chaetoceros sp. dan Nannochloropsis sp. masing-masing. Kedua-dua mikroalga mempunyai nilai EC₅₀ yang lebih rendah terhadap endosulfan. Endosulfan memberi kesan negatif terhadap dinding sel mikroalga berbanding dengan pigmen-pigmen fotosintetik. Dengan ini, penggunaan pestisid yang tidak terkawal akan memberi kesan terhadap produktiviti primer di ekosistem akuatik.