

6- TAZDAÏT, D., ABDI, N., GRIB, H., LOUNICI, H., PAUSS, A., MAMERI, N.
**Comparison of different models of substrate inhibition in aerobic batch
biodegradation of malathion**

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ABSTRACT:

In this study, the biodegradation of malathion by a culture of acclimated indigenous activated sludge was investigated under aerobic conditions. Specific substrate consumption rates (r_s) of the culture under different initial malathion concentrations of from 5 mg/L to 140 mg/L were calculated. The results showed the potential for using local activated sludge for malathion biodegradation. However, malathion exhibited inhibition of substrate degradation rate at 140 mg/L. Various substrate inhibition models were compared by fitting them to the experimental data using Statistica 7.0 software. Experimentally it was observed that the kinetic biodegradation of malathion was best described by both the Andrews and Yano and Koga models, which gave high coefficients of determination (0.97 and 0.98, respectively). On the other hand, the degradation ability of the activated sludge was found to be weak when the pesticide was used as the sole source of sulfur or phosphorus.