



View PDF

Access through **your institution**[Purchase PDF](#)

Journal of Hazardous Materials

Volume 351, 5 June 2018, Pages 63-70

Multiparameter analysis of activated sludge inhibition by nickel, cadmium, and cobalt

Gabriel R. Hernandez-Martinez ^a, Daniela Ortiz-Alvarez ^{a, b}, Michael Perez-Roa ^{a, b}, Nestor Andres Urbina-Suarez ^b, Frederic Thalasso ^a

[Show more](#) [Outline](#)[Share](#)[Cite](#)<https://doi.org/10.1016/j.jhazmat.2018.02.032>[Get rights and content](#)

Highlights

- Activated sludge inhibition by Ni, Cd, and Co was quantified by microrespirometry.
- Several kinetic and stoichiometric parameters were determined.
- Heavy metals showed a complex uncompetitive inhibition.
- Inhibition depended on the inhibitor, substrate, and biomass concentrations.
- Inhibition also depended on the exposure time.

Abstract

FEEDBACK

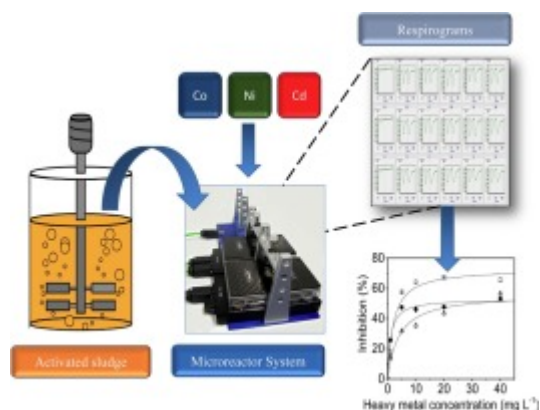


Access through **your institution**

[Purchase PDF](#)

rate (OUR_{max}). The results indicated that, in a range of concentration from 0 to 40 mg L⁻¹, the three heavy metals exerted an uncompetitive and incomplete inhibitory effect, with a maximum inhibition of 67, 57, and 53% for Ni, Co, and Cd, respectively. An increase of the biomass concentration by 620% resulted in a decrease of the inhibition by 47 and 69% for Co and Cd, respectively, while no effect was observed on Ni inhibition. An increase of the substrate concentration by 87% resulted in an increase of the inhibition by 24, 70, and 47% for Ni, Co and Cd, respectively. In the case of nickel and cadmium, an increase in the exposure time to the heavy metals also increased the inhibition.

Graphical abstract



[Download : Download high-res image \(159KB\)](#)

[Download : Download full-size image](#)

[<](#) **Previous**

Next [>](#)

Keywords

Microrespirometry; Models; Kinetic parameters; Exposure time; Toxicity

[Recommended articles](#)

[Citing articles \(14\)](#)

FEEDBACK

[View PDF](#)[Access through your institution](#)[Purchase PDF](#)[About ScienceDirect](#)[Remote access](#)[Shopping cart](#)[Advertise](#)[Contact and support](#)[Terms and conditions](#)[Privacy policy](#)

We use cookies to help provide and enhance our service and tailor content and ads. By continuing you agree to the **use of cookies**.

Copyright © 2021 Elsevier B.V. or its licensors or contributors. ScienceDirect ® is a registered trademark of Elsevier B.V.

ScienceDirect ® is a registered trademark of Elsevier B.V.

[FEEDBACK](#)