

# Effect of zinc and benzalkonium chloride on *Nitrosomonas communis* and potential nitrification in soil

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A bacterial contact assay is described which uses a chemoautotrophic microorganism, *Nitrosomonas communis* (strain Nm2) to evaluate the biological effect of contaminated soils. The effects of two toxicants on the ammonium oxidation activity of the autochthonous microbial population in the soil are compared with inhibition of the same biological response in the new monospecies bioassay. Experiments were performed using soil samples dosed with organic and inorganic contaminants (benzalkonium chloride and zinc) to demonstrate the mode of operation and the sensitivity of the bioassay. The EC50 values of zinc and benzalkonium chloride were calculated to be 171 and 221 mg kg<sup>-1</sup> soil, respectively. The toxic response provided by the bioassay can thus predict the effect of soil pollutants on the autochthonous nitrifying bacteria. © 2001 John Wiley & Sons, Inc.