Atrazine removal in Danish anaerobic aquifers

The pesticide atrazine (6-chloro-N-2-ethyl-N-4-isopropyl-1,3,5-triazine-2,4-diamine) was removed from the water phase in anaerobic laboratory batch incubations with sediment and groundwater from a number of Danish anaerobic aquifers, but not in incubations from aerobic aquifers. The removal process was abiotic since atrazine was also removed from microbiobically inhibited autoclaved and chloroform amended controls, although in controls amended with mercury, atrazine removal was slowed down. (ring-U-C-14)-atrazine amended samples showed no mineralization to (CO2)-C-14 or transformation to soluble degradation products, indicating that a slow sorption process was responsible for the atrazine removal. Approximately 20% of the applied C-14-atrazine was present in a non-extractable residual sediment bound fraction, indicating the slow sorption process to be in part irreversible. The irreversible sorption process may be important in terms of natural attenuation of atrazine in aquifers.

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