

Urobilin as tracer of nitrate contamination by animal waste in groundwater

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Generally, sources of groundwater contamination by nitrate are non-point sources such as fertilizer (agriculture) and animal waste (livestock industry). Therefore, it has been concerned to spread in the future because administrative restriction is difficult to achieve and there are no effective measures. However, some types of contamination sources serve as point source such as landfill by livestock excreta. In this study, urobilin included in livestock excreta was used as a tracer to investigate the influence of a disposal pit of animal waste on nitrate contamination groundwater in Tsukuba Upland. The results demonstrate that nitrate contamination decreases remarkably in a clay layer (blue gray) by denitrification. Conversely, urobilin was confirmed to pass through the clay layer (blue gray) and to be transported vertically downward. In addition to findings, our observation suggests that nitrate derived from livestock excreta has been affecting the aquifer of the region for about 15-20 years.