

Ammonium sources in rural coastal aquifer using integrated water quality parameters: chemical, biological, and environmental isotopes

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Ammonium, although, is not regulated in drinking water quality standards, its existence is undesirable because indicated an extinction of domestic waste pollution. In Indonesian coastal aquifer, the dominant presence of ammonium compared to other dissolved nitrogen parameters is not always found. In many cases, the dominant dissolved nitrogen parameter is a nitrate, while ammonium is usually detected in land-use that is heavily impacted by domestic waste, such as densely populated residential and land-fill. Interestingly, in our research area, we detected a dominant existence of ammonium in many types of land-uses, which is not only limited to the area that suspected polluted by domestic waste. Our preliminary results from 46 groundwater samples show ammonium is dominant compared to nitrate at almost samples. Meanwhile, samples from the river (4) and spring water (2), those are taken as a comparison, are dominated by nitrate. Through this research, we analyze the source of ammonium by analyzing major elements, coliform bacteria, and ammonium isotope in order to evaluate coastal aquifer vulnerability towards ammonium contamination.

Keywords: ammonium, coastal aquifer, chemical, coliform, isotope