ABSTRAK

Air sumur merupakan sumber utama air bersih bagi masyarakat yang bermukim di sekitar kawasan industri, termasuk industri pupuk, yang berpotensi menjadi sumber pencemaran amonia serta berdampak terhadap kualitas lingkungan dan kesehatan masyarakat. Penelitian ini bertujuan untuk mengetahui kandungan dan rerata kadar amonia pada air sumur rumah tangga di sekitar kawasan pabrik pupuk di Desa Tambon Baroh. Penelitian ini merupakan penelitian deskriptif laboratorik. Pengambilan sampel dilakukan dengan metode *systematic random sampling*. Penelitian ini dilaksanakan di Dusun Sejahtera, Desa Tambon Baroh, Kecamatan Dewantara, Kabupaten Aceh Utara. Sampel penelitian berjumlah 60 sumur rumah tangga yang terdiri atas 40 sumur gali dan 20 sumur bor. Pemeriksaan kadar amonia dilakukan di Balai Laboratorium Kesehatan Masyarakat Banda Aceh menggunakan metode spektrofotometri UV-Vis. Data hasil penelitian dianalisis secara deskriptif dan dibandingkan dengan baku mutu air berdasarkan Peraturan Menteri Kesehatan Republik Indonesia Nomor 2 Tahun 2023, yaitu sebesar 1,5 mg/L. Hasil penelitian menunjukkan bahwa dari 60 sampel air sumur yang diperiksa, sebanyak 35 sampel (58,3%) memiliki kadar amonia melebihi ambang batas, sedangkan 25 sampel (41,7%) masih memenuhi persyaratan. Kadar amonia berkisar antara 0 mg/L hingga 2.178 mg/L, dengan nilai rerata sebesar 334,45 mg/L dan median sebesar 62 mg/L. Kadar amonia tertinggi ditemukan pada sumur gali terbuka, yang menunjukkan bahwa kondisi fisik sumur berpengaruh terhadap tingkat risiko pencemaran. Kesimpulan penelitian ini menunjukkan bahwa mayoritas air sumur rumah tangga di wilayah penelitian tidak memenuhi baku mutu amonia. Sehingga diperlukan pemantauan kualitas air sumur secara berkala, perbaikan konstruksi sumur, serta pengelolaan lingkungan yang lebih baik guna meminimalkan risiko pencemaran dan melindungi kesehatan masyarakat.

Kata kunci: amonia, air sumur, spektrofotometri UV-Vis

ABSTRACT

Well water is the primary source of clean water for communities living near industrial areas, including fertilizer industries, which have the potential to become sources of ammonia contamination and negatively affect environmental quality and public health. This study aimed to determine the concentration and mean level of ammonia in household well water surrounding the fertilizer plant area in Tambon Baroh Village. This study employed a descriptive laboratory research design. Samples were collected using a systematic random sampling method. The study was conducted in Dusun Sejahtera, Tambon Baroh Village, Dewantara District, North Aceh Regency. The research samples consisted of 60 household wells, including 40 dug wells and 20 drilled wells. Ammonia levels were examined at the Banda Aceh Public Health Laboratory using the UV-Vis spectrophotometric method. The data were analyzed descriptively and compared with the water quality standard based on the Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2023, which sets the permissible limit at 1.5 mg/L. The results showed that out of 60 well water samples examined, 35 samples (58.3%) had ammonia levels exceeding the permissible limit, while 25 samples (41.7%) met the required standard. Ammonia concentrations ranged from 0 mg/L to 2.178 mg/L, with a mean value of 334.45 mg/L and a median of 62 mg/L. The highest ammonia concentration was found in open dug wells, indicating that the physical condition of wells influences the risk level of contamination. In conclusion, the majority of household well water in the study area did not meet the ammonia quality standard. Therefore, regular monitoring of well water quality, improvement of well construction, and better environmental management are necessary to minimize contamination risks and protect public health.

Keywords: ammonia, well water, UV-Vis spectrophotometry