

ABSTRACT

Nitrogen is an essential nutrient that plays a critical role in plant growth and productivity. The Wih Balek Sub-watershed is located in the upstream area of the Krueng Peusangan watershed in Central Aceh Regency, 55,08% of its area is classified as critically degraded land. This condition potentially affects soil nitrogen fractionation dynamics in the area. This study aimed to determine the levels of Total-N, Ammonium, and Nitrate in the Wih Balek Sub-watershed, Central Aceh Regency. This research used a survey method based on Land Mapping Units (LMU) derived from the overlay of soil type, topography, and land use maps. Soil samples were collected from 11 out of 15 LMUs at a depth of 0–30 cm. The results showed that Total-N values ranged from very low to high (0,06% – 0,63%). The lowest Total-N was found in LMU 6 at 0,06%, while the highest was in LMU 8 at 0,63%. Ammonium values ranged from 4,47 to 9,59 ppm with medium to high criteria. The lowest ammonium was found in LMU 8 at 4,47 ppm. The highest ammonium was recorded in LMU 9 at 9,59 ppm. Nitrate values ranged from 10,70 to 38,62 ppm with high to very high criteria. The lowest nitrate was found in LMU 9 at 10,70 ppm. The highest nitrate was found in LMU 7 at 38,62 ppm.

Keywords: ammonium, nitrate, soil type, total-N