

# Assessment of Ground Water Quality in Yangon University of Education Area, Yangon Region

Su Lay Yee <sup>1</sup>, Cherry Ohn <sup>2</sup>, Win Nu Nay Chi <sup>3</sup> and Nay Mar Soe <sup>4</sup>

## Abstract

The research was to investigate physicochemical and microbiological properties of groundwater in Yangon University of Education area in order to evaluate its suitability for domestic purpose. Five groundwater samples from different places in Yangon University of Education area such as YUOE main building, Nawaday hostel, Than Byin hostel, Pyay hostel and Takaung hostel were collected. The collected water samples were filtered using locally available adsorbents to reduce the dissolved impurities in the water samples. The process of removal of dissolved solids from groundwater samples were carried out by adsorption techniques using adsorbent layer by layer pattern of pieces of bricks, sand, rice husk chars and pieces of luffa sponge. The physical, chemical, and microbiological analysis of water samples before and after filtration has been done through the measurement of pH, electrical conductivity, turbidity, total suspended solids, total dissolved solids, total hardness, total alkalinity, chloride, nitrate, dissolved oxygen, chemical oxygen demand, calcium, magnesium, iron, lead, arsenic, *E.coli* and total coliform count. Then, comparative studies of samples before and after filtration were conducted and it was found that the physicochemical and microbiological properties of water samples were within the WHO standard range of drinking water except iron content of S-1 from YUOE main building and S-2 from Nawaday hostel. But the iron content of S-1 and S-2 were decreased to the WHO standard range after filtration. Therefore, a prepared filter removed dissolved impurities from groundwater. Toxic elements, lead and arsenic were not detected in all samples before and after filtration. Microbiological properties such as *E. coli* and the total coliform count in S-1 from YUOE main building and S-5 from Takaung hostel were found before filtration by prepared filter. So, the study of the quality assessment of these water samples suggested that the water quality of the study area can be used for domestic purposes but they cannot be used as drinking water.

**Keywords:** groundwater, physicochemical and microbiological properties, filtration, water quality

---

1. Associate Professor, Dr., Department of Chemistry, Yangon University of Education  
2. Associate Professor, Dr., Department of Chemistry, Yangon University of Education  
3. Demonstrator, Department of Chemistry, Yangon University of Education  
4. Professor/ Head, Dr., Department of Chemistry, Yangon University of Education