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Determination of Anions and Metals Content in Effluent Water from Dairy and Meat Processing Industry in Sri Lanka**Sanjeevani R.D.J.^{1*}, Marapana R.A.U.J.¹, Cooray A.²**¹*Department of Food Science and Technology, University of Sri Jayewardenepura, Gangodawila, Sri Lanka*²*Department of Chemistry, University of Sri Jayewardenepura, Gangodawila, Sri Lanka*
jayanirajage@gmail.com*Abstract**

Industrial effluents are liquid wastes which are produced by the different industrial activities and represents a heavy source of environmental pollution. Compared to other industries, food industry requires great amounts of water. Excess Anions and metal content of wastewater from food processing industries have resulted contamination of soil, ground water and surface water. The main environmental problem of the food industry is that wastewater resulting from their activities is not meeting the limits of the environmental regulations for the discharge to the environment. The main objectives of this study are characterised wastewater from dairy and meat processing industries in Sri Lanka through analysis of physicochemical parameters (pH, electrical conductivity, metals and anions). Samples of wastewater were collected from five dairy and five meat processing companies at different days and 3 replicate measurements were taken from each samples. For all the analysis, APHA methods were followed. Ranges of pH, electrical conductivity, Metals (Pb, Fe, Zn, K, Ca) and Anions (Cl⁻, NO₃⁻, SO₄²⁻, PO₄³⁻ and Kjeldahl Nitrogen) of wastewater respectively were 5.3±0.1 to 7.7±0.1, 0.99±0.01 to 1.77±0.01 sm⁻¹, 0.06±0.01 to 165.62±9.71 mg l⁻¹ and 14.33±0.11 to 824.66±13.87 mg l⁻¹ in dairy industry and 6.5±0.1 to 9.6±0.1, 0.43±0.01 to 2.44±0.02 sm⁻¹, 0.09±0.01 to 153.44±7.29 mg l⁻¹ and 0.98±0.01 to 252.00±0.01 mg l⁻¹ in meat industry. Physicochemical properties of wastewater all mean values among dairy and meat processing industry were significantly different (p<0.05). Meat industry had higher amount than dairy industry if considering the pH, Conductivity, metals and anions. Further, the physical and chemical properties which analysed for this study had not any single linear relationship (p<0.05). Physical and chemical parameters of both dairy and meat processing industrial wastewater exceeded maximum tolerance limit that has laid from the Central Environmental authority (p<0.05). Finally can concluded as the presence limit anions and metal content of dairy and meat processing effluent in Sri Lanka can have hazardous effects on the environment. Therefore, before the discharge wastewater to the inland surface water pretreatment process is essential.

Keywords: Anions, Dairy and Meat processing company, Metal, Physicochemical properties, Wastewater