SORTING OF HEXAVALENT CHROMIUM HEAVY METALS IN WATERS AND SOILS IN THE TANNING INDUSTRY ENVIRONMENT OF BANYAKAN KAPANEWON PIYUNGAN BANTUL

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ABSTRACT

The study was conducted around the Banyakan Tannery Industrial Area, Kapanewon Piyungan, Bantul Regency. The background of this research is due to the existence of a tannery industry adjacent to irrigation streams and settlements. This study aims to determine the distribution of chromium, determine the effect of waste discharge distance on hexavalent chromium levels and determine soil properties that affect hexavalent chromium levels. The methods used are surveys and laboratory analysis. Sampling is carried out by purposive sampling techniques based on those passed by the waste stream. Samples were taken on irrigation water, river water, well water, irrigated soil, rice fields and rice plants with a distance range of 100 meters between sample points. The research parameters used were hexavalent chromium, total chromium, H_2O pH, organic matter, electrical conductivity, and percent clay. The results showed a hexavalent chromium range between 0,0019 – 0,0032 ppm in waters and between 0,04 – 0,07 ppm in soil, total chromium between 0,0053 – 0,0423 ppm in waters and between 4,117 – 31,783 ppm in soil while total chromium rice plants were 31,1 ppm and 41,4 ppm. Total chromium in soil and rice crops exceeded the threshold. There is no relationship between distance and hexavalent chromium levels. In soil, electrical conductivity is directly proportional to hexavalent chromium and pH is inversely proportional to hexavalent chromium.

Keywords: Tanning waste, hexavalent chromium, water and soil pollutio