

**HEAVY METAL AVAILABILITY (ZINC AND COPPER) IN PEAT SOIL
UNDER OIL PALM PLANTATION**

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ABSTRACT

HEAVY METAL AVAILABILITY (ZINC AND COPPER) IN PEAT SOIL UNDER OIL PALM PLANTATION

Heavy metals are non-biodegradable and can remain almost indefinitely in the soil environment. The contamination by heavy metals in soil is one of the important issues and requires attention because heavy metal above the standard of heavy metal limit in soil will threatened to both plants and living things. A study regarding heavy metal availability in peat soil under oil palm plantation and the relationship between concentrations of heavy metal content with different planting ages that affect the availability of heavy metal content at Felcra Sri Mendapat. The soil was collected at different planting ages less than 10, more than 15, and more than 20 years. Simple random sampling was used with three replication of treatments for every week within three week for analysis. One parameter (planting ages) and emphasized on two elements of heavy metal (Zn and Cu). Heavy metals present in soil were determined using the Mehlich 1 method. The result indicates that the heavy metal availability between Zn and Cu in peat soil under oil palm plantation is significant. Results showed that concentration of zinc below standard of heavy metal limit in soil and copper exceed standard of heavy metal limit in soil. The relationship between the concentration of Zn different planting ages is significant except for Cu there is no correlation with the planting ages.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Heavy metal in oil palm plantation was occurred when excessive applied fertilizer and chemical contents when used in the long term. The word “Heavy” are described about high relative atomic mass which remains in the soil and can cause harm or eradication in animals, humans, and plants. The study from Chibuike & Obairo, (2014) proved, heavy metal represents constituent that displays metallic properties likes ductility, malleability, conductivity, cation stability, and ligand specificity. They are distinguished by relatively high density and high relative atomic weight with an atomic number greater than 20.

Metal such as Zn and Cu are required smallest amount of organisms. However, unrestrained amounts of these elements can become dangerous to organisms. Heavy metal give affect the amount, multiplicity and movement of soil microorganisms. According Chibuike & Obairo, (2014) says that, the most harmful of these metals on microorganisms based on several of factors likes a soil temperature, pH, clay minerals, organic matter, inorganic anions and cations and chemical form of metals. The existence of one heavy metal will affect the availability of another in the soil and also plants.

As metal cannot be decayed or broken, when contain within the plant overreached optimal quantity, they badly affect the plant without we realized. Heavy metal carried by air and water when removed into the environment. Since heavy metals have a propensity to build up in selective body organs. This is proved by Nor *et al.*, (2015) says that, heavy