

**ACCUMULATION OF HEAVY METAL IN TEA LEAVES
(*Camellia sinensis*) AT SABAH TEA PLANTATION AND
THEIR POTENTIAL RISK TO HUMAN HEALTH**

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ABSTRACT

ACCUMULATION OF HEAVY METAL IN TEA LEAVES (*Camellia sinensis*) AT SABAH TEA PLANTATION AND THEIR POTENTIAL RISK TO HUMAN HEALTH

Sabah Tea Plantation is one of the most famous tea industries in Malaysia, located in Ranau, Sabah. Heavy metal is dangerous because it can affect human health in several way such as ingestion and daily consume of the elements. This study was conducted from March 2019 until July 2019. The tea plant species that was used in this study was *Camellia sinensis*, where the species is the dominant species in Sabah Tea Plantation and in Asia. The aim of this study focused on to evaluate the potential health risk inside the tea leaves of *Camellia sinensis* in Sabah Tea Plantation, Ranau, Sabah by using the Atomic Absorption Spectrophotometer (AAS). The study investigated five heavy metals which were Lead (Pb), Cadmium (Cd), Copper (Co), Chromium (Cr) and Cobalt (Co). Based on the findings, young leaves accumulate higher than the mature leaves in the *Camellia sinensis*. In three different height of *Camellia sinensis*, low height accumulate higher (0.9-7.69 mg/L) had concentration of heavy metal rather than medium (0.13-4.13 mg/L) and high (0.20-1.62 mg/L) height. The safety standards taken from Safety standards suggested by National Food Safety Standard (2012) and US EPA (2015) indicate that Co in mature leaves exceed the safety standards while Co and Cu in low height exceed the safety standards. Findings of this study could be utilized for better management of the Sabah Tea Plantation. In conclusion, the heavy metal content in tea leaves shown that Co and Cu exceed the safety standards. As recommendation, the evaluated heavy metal could be expanded to other carcinogenic heavy metal such as Arsenic (As), Aluminium (Al) and Zinc (Zn) to improve the accuracy of the determination of heavy metal inside the tea leaves.