

**CYTOTOXICITY TEST OF ESSENTIAL OIL FROM CINNAMON BARK  
(*Cinnamomum burmannii Cortex*) ON RAT BONE MARROW  
MESENCHYMAL STEM CELL USING MTT ASSAY**

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**ABSTRACT**

The aim of this study is to determine the cytotoxicity properties of essential oil from *Cinnamomum burmannii Cortex* on rat bone marrow mesenchymal stem cell (rBMSCs). This research is an experimental laboratory with The Post Test Only Group as a research design. Essential oil from *Cinnamomum burmannii Cortex* obtained from steam distillation method and essential oil was made in a series dilution with a concentration of 0,5%, 0,25%, 0,125%, 0,0625% and 0,0312%. Furthermore, the cytotoxicity test on rBMSCs using MTT assay. Microplate containing rBMSCs that had been exposed to five concentrations was incubated in a 5% CO<sub>2</sub> incubator with 37 °C for 24 hours. The result of MTT assay can be seen from the absorbent solution formazan crystal through ELISA reader with the specific wavelength of 595nm which produces data in the form of Optical Density (OD). The result research showed that the rBMSCs cell life percentage in 0,5%, 0,25%, 0,125%, 0,0625% and 0,0312% of concentration respectively were 12,8%, 18,3%, 21,7%, 26,5% and 32,5%. Probit analysis is used to determine the LC<sub>50</sub> of essential oils from *Cinnamomum burmannii Cortex*. It can be concluded that the smaller the concentration of essential oils given to rBMSCs, the higher the percentage of cell life. In this study, the concentration of essential oils which can kill 50% of rBMSCs is 0,004%.

**Key words :** Cytotoxicity, *Cinnamomum burmannii Cortex*, essential oil, rBMSCs, MTT assay