

CYTOTOXICITY TEST OF KEMBANG BULAN LEAF EXTRACT (*Tithonia diversifolia*) ON BONE MARROW MESENCHYMAL STEM CELL (BMMSC) OF RATS USING MTT ASSAY METHOD

Agesti Veva Kalista

ABSTRACT

Background: Kembang bulan leaf extract (*Tithonia diversifolia*) belong to Asteraceae family, they are worldwide known for their biological properties such us anti-diabetic, anti-parasitic, anti-microbial, anti-inflammatory, etc. a class of terpenoid from this plant known as *sesquiterpene lactone* taking the role for their biological properties and their toxicity. **Purpose:** The aim of this study was to identify the cytotoxicity effect of kembang bulan leaf extract (*Tithonia diversifolia*) on bone marrow mesenchymal stem cell using MTT assay. **Method:** The sample of this research using bone marrow mesenchymal stem cell of rats. The kembang bulan leaf extract (*tithonia diversifolia*) divide into 4 concentration (0,5%, 0,25%, 0,125%, and 0,0625%) and given to bone marrow mesenchymal stem cell of rats in each well and incubated for 24 hours. The toxicity result was obtained using MTT assay method and incubate for 4 hours. The optical density absorbency which indicates cell viability calculated by ELISA reader with a wavelength of 595nm. Cytotoxicity parameters using LC50 and analyzed by probit analysis. **Conclusion:** the extract of kembang bulan leaf with the concentration of 0,5%, 0,25%, and 0,125% found to kill cell up to 50% and only the concentration 0,0625% of kembang bulan leaf extract with the highest cell viability. The LC50 value of kembang bulan leaf extract on bone marrow mesenchymal stem cell of rat is 0,167%.

Keyword : Kembang bulan leaf extract, mesenchymal bone marrow stem cell of rats, cytotoxicity, LC₅₀