



Research article

## Combination effect of ethylacetate extract leaves of *Moringa oleifera* L. and Doxorubicin against MCF-7 cell lines

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**Key words:** Combination effect, *Moringa oleifera* L., MCF-7, Doxorubicin, Ethylacetate.

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### Abstract

**Objective:** This study aim is to determine the effect of ethylacetate extract (EAE) of *Moringa oleifera* L. leaf and its combination with doxorubicin on cytotoxic effect, combination effect, cell cycle, apoptosis on MCF-7 cell lines. **Methods:** In vitro cytotoxic assays was determined by MTT (Microculture Tetrazolium Tehnique) assay, combined test was analysis with Compusyn software version 1, cell cycle inhibition and apoptosis were determined with Flowcytometry. **Result:** Cytotoxic activity of EAE with IC<sub>50</sub> value 149.29 µg/mL, combination test of very strong synergistic at 1/8 IC<sub>50</sub> EAE-1/4 IC<sub>50</sub> doxorubicin concentration. The combination were caused cell accumulation in the G<sub>0</sub>/G<sub>1</sub> phase, increased early and late apoptosis on MCF-7 cell lines. **Conclusions:** Based on the results combination giving a very strong synergistic effect. Therefore more research is needed on the mechanism.