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Combination of (1,2-epoxy-3(3-(3,4-dimetoxyphenyl)-4H-1-benzopyran-4on) propane with doxorubicin and cisplatin synergistically augments anticancer activity by increasing miRNA-214, miRNA-34 and p53 expression

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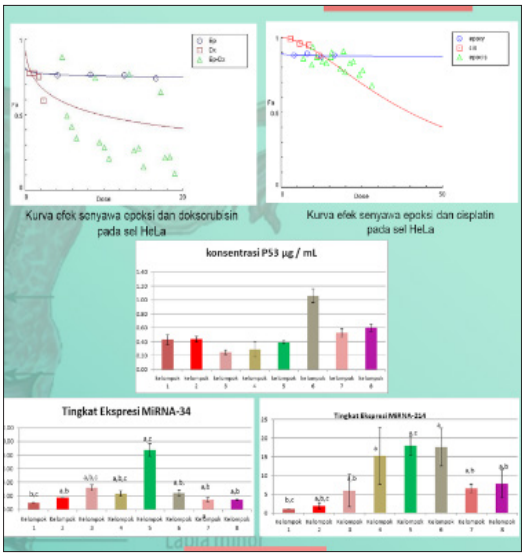

Cervical cancer is one of the leading causes of death in women in the developing countries. The use of doxorubicin as chemotherapy agent is known to cause cardiotoxicity and drug resistance. One of the strategies to prevent cervical cancer based on agent's combination is under development. (1,2-epoxy-3(3-(3,4-dimetoxyphenyl)-4H-1-benzopyran-4on) propane (Epoxy) synthetic from clove leaves oil has been revealed to induce cell death. The aim of this study was to explore the cytotoxic effect of isoflavones from clove leaves oil extract Epoxy, its influence in combination with doxorubicin and cisplatin and increasing of miRNA-214, miRNA-34 and P53 protein as a therapeutic target on HeLa cervical cancer cell. The cytotoxicity of the drugs as a single agent or in combination against several cancer cell types was analyzed by MTT assay and the synergism of the drug combination was evaluated by calculating the combination index (by Compusyn 1.4 software). Thus, the expression of miRNA-34, miRNA-214 is measured by qPCR, while P53 measures by ELISA method. The conclusions of this study were isoflavones from clove leaf oil extract (1,2-epoxy-3 (3- (3,4-dimethoxyphenyl)- 4H-1-benzopyran-4on) propane causing cell death in cells HeLa cervical cancer, having a highly synergistic co-chemotherapy with doxorubicin and cisplatin, higher the expression of miRNA-214, miRNA-34 and P53 protein in cervical cancer cells in a dose-dependent manner. The results of this study may produce new cervical anticancer drugs, or co-chemotherapy is expected to have high effectiveness with low side effects.

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Biography

Lelly Yuniarti is a Researcher and Doctoral candidate in the field of Health and Biomolecules. His recent research is to test the combination of active compounds with standard drugs and make microRNAs as molecular targets of therapy and his recent studies are on natural ingredients and their effects on cancer and metabolic abnormalities.

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