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Antiproliferative and apoptosis inducing activity of kusunokinin and 5'-desmethoxyyatein on human cancer cells line

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Kusunokinin and 5'-desmethoxyyatein are synthetic lignan compounds. Previous study suggested that lignan compounds have several biological activity such as anti-inflammatory, antioxidant and anticancer activity. The anticancer activity of kusunokinin and 5'-desmethoxyyatein were evaluated in human cancer cells line (breast cancer cells line, colon cancer cells line and cholangiocarcinoma cell lines) by methyl thiazolyl tetrazolium (MTT) assay. The potential cytotoxic activity of kusunokinin was found on breast cancer cells line (MCF-7) with the half inhibitory concentration (IC₅₀) value at $4.30 \pm 0.65 \mu\text{M}$ more than etoposide ($43.32 \pm 3.39 \mu\text{M}$). 5'-desmethoxyyatein exhibited significant inhibition of the survival of cholangiocarcinoma cell lines (KKU-M213) at IC₅₀ values was $1.37 \pm 0.29 \mu\text{M}$ at 72 h finer than etoposide ($5.80 \pm 0.21 \mu\text{M}$). These compounds are less cytotoxicity on fibroblast cell line than etoposide. Whiles, the cell lines treated with kusunokinin and 5'-desmethoxyyatein for 0, 24, 48, 72 and 96 h at IC₅₀ values shown increasing multicaspase activity and inducing apoptosis cells. The caspase activity study revealed that these compounds induced apoptosis through multicaspase activity in time dependent manner. Moreover, these compounds treatment did not contribute on the accumulation of cells cycles. This study discovered that these compounds induced cytotoxicity and apoptotic cell death which suggests that these compounds could be used as an apoptosis-inducing anticancer agent for human cancer treatment with further detailed studies.

Biography

Thidarath Rattanaburee is a second years PhD student at Department of Biomedical Sciences, Faculty of Medicine, Prince of Songkla University, Thailand. She received Bachelor of Science (First Class Honor, Medical Science) in 2011. After that three years, she received Master of Science (Immunology). She received a scholarship from the Royal Golden Jubilee PhD Program of Thai government and Prince of Songkla University PhD Scholarship. She has researching focused on drug developing alternative treatment and cancer therapy.

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