SYNTHESIS AND CYTOTOXIC TEST of 3,3'-BIS(5,6-DIMETHOXYPYRIDOL-3-IL)-5-CHLOROOXYNDOLE TO CERVIX CANCER CELL HeLa

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ABSTRACT

Cervix cancer is the main cause death as result of cancer in developing countries. Various compounds has been developed fights against cancer, however no one from the compounds type satisfying without accompanied by harming side effects. 3,3'-Bis(indol-3-il)oxyndole is known to has cytotoxic bioactivity at cancer cell HCT15 from Colorectal adenocarcinoma and cell MES-SA from Uterine sarcoma. Research which be executed means synthesis 3,3'-bis(5,6-dimethoxyindol-3-il)-5-chlorooxyndole from 3,4-dimethoxybenzaldehyde through four phases. First phase is orthogonal transformation 3,4-dimethoxybenzaldehyde becomes 3,4-dimethoxy-β-nitrostirene which at second phase nitration to yield 3,4-dimethoxy-2,β-dinitrostirena Reduction. Siklisation at third phase to yield 5,6-dimethoxyindole, and at fourth phase reacted 5,6-dimethoxyindole with 5-chloroisatin studied to yield 3,3'-bis(5,6-dimethoxyindol-3-il)-5-chlorooxyndole. Result of synthesis analysed applies NMR spectrometer and or mass. Cytotoxic test of 3,3'-bis(5,6-dimethoxyindol-3-il)-5-chlorooxyndole hereinafter is done in in vitro.

Transformation 3,4-dimethoxybenzaldehyde becomes 3,4-dimethoxy-β-nitrostirene done through Henry reaction with rendement 82%, and nitration at 3,4-dimethoxy-β-nitrostirene yields 3,4-dimethoxy-2,β-dinitrostirene with rendement 92%. Reduction of Siklisation 3,4-dimetoxy-2,β-dinitrostirene applies iron powder to yield 5,6-dimethoxyindole with rendement 14%, and reaction of 5,6-dimethoxyindole with 5-chloroisatin applies sour catalyst yields 3,3'-bis(5,6-dimethoxy-3-il)-5-chlorooxyndole with rendement 36%. 3,3'-Bis(5,6-dimethoxy-3-il)-5-chlorooxyndole shows cytotoxicity to cervix cancer cell Hela with IC<sub>50</sub> 112 µM.

Keyword : cytotoxic, 3,3'-bis(5,6-dimethoxyindol-3-il)-5-chlorooxyndole, synthesis