# Zingiber officinale, Piper retrofractum and Combination Induced Apoptosis and p53 Expression in Myeloma and WiDr Cell Lines

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| **Title** | Zingiber officinale, Piper retrofractum and Combination Induced Apoptosis and p53 Expression in Myeloma and WiDr Cell Lines |
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| **Abstract** | In previous studies, Zingiber officinale, Piper retrofractum, and the combination showed cytotoxic activity, induced apoptosis, and p53 expression of HeLa, T47D, and MCF-7 cell lines. This study was conducted to investigate the cytotoxic and apoptotic activity of Zingiber officinale (ZO), Piper retrofractum (PR), and the combination as well as their effect to p53 expression on Myeloma and WiDr cells. The powder of ZO, PR, and ZO + PR combination (1:1) were macerated with 96% ethanol for 3 x 24 hours. MTT cytotoxic assay was performed on Myeloma and WiDr cell lines. Apoptotic cells were stained with ethidium bromide and acridine orange. Imunohistochemical expression of p53 was examined on Myeloma and WiDr cell lines. Doxorubicin was used as positive control in all assays. Results showed that ZO, PR, and ZO + PR combination had cytotoxic activity on Myeloma cells with IC50ÃƒÂ,Ã‚Â of 28, 36, and 55 mg/ml respectively and WiDr cell lines with IC50 of 74, 158, and 64 mg/ml respectively, induced apoptotic activity, and increased p53 expression on Myeloma and WiDr cells. These results suggest that ZO, PR, and their combination induced Myeloma and WiDr cells in apoptosis through p53 expression. |
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