Zerumbone, a Natural Dietary Sesquiterpene from Zingiber Zerumbet for Leukaemia Therapy In Vitro

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Zerumbone (ZER) is a natural crystalline phytochemical compound that isolated from \textit{Zingiber zerumbet} (L.) Smith in 1956. In this investigation, the anticancer properties of ZER were evaluated for the first time on cancer cells of T-acute lymphoblastic leukemia, Jurkat cells; using 3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyl tetrazolium bromide (MTT) assay and microscopic investigation (fluorescent microscope and scanning electron microscope). The results showed that ZER has cytotoxic effect against Jurkat cells in time dependent manner (24, 48 and 72 h) with an IC\textsubscript{50} of 11.87±0.17 µg/mL, 8.59±0.48 µg/mL and 5.39±0.43 µg/mL respectively. Comparatively, doxorubicin (positive control) imposed an inhibitory effect on Jurkat cells with an IC\textsubscript{50} of 1.51±0.07 µg/mL after 72 h incubation. Simultaneously, we revealed that the inhibitory effect of ZER on leukaemic cells growth was due to induction of apoptosis as evidenced by microscopic investigation. The current finding suggested that ZER with its unique chemical structure and versatile pharmacological activities might be helpful for improving the usefulness of anticancer agents in the therapy of leukemia.

\textbf{Keywords:} Zerumbone, MTT assay, Microscopic investigation, Leukemia.