

OR-51**Zerumbone, a Natural Dietary Sesquiterpene from Zingiber Zerumbet for Leukaemia Therapy In Vitro**

Heshu Sulaiman Rahman¹, Rasedee Abdullah^{1,2,*}, Ahmad Bustamam Abdul², Zeenathul Nazariah Allaudin^{1,2}, Farideh Namvar³, Hemn Hassan Othman¹, Swee Keong Yeap² and Chee Wun How²

¹Department of Microbiology and Pathology, Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia; ²Institute of Bioscience, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia; ³Institute of Tropical Forestry and Forest Products, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia; E-mail: rasedee@vet.upm.edu.my

Zerumbone (ZER) is a natural crystalline phytochemical compound that isolated from *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 IC₅₀ 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 IC₅₀ 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.

Keywords: Zerumbone, MTT assay, Microscopic investigation, Leukemia.
