

Typhonium flagelliforme inhibits the proliferation of murine leukemia WEHI-3 cells in vitro and induces apoptosis in vivo

ABSTRACT

Typhonium flagelliforme (TF) is a tropical plant, traditionally used by the ethnic population of Malaysia for the cure of various cancers. This plant had shown to induce antiproliferative effect as well as apoptosis in cancer cells. However, there is no available information to address that TF affects murine leukemia cells in vitro and in vivo. Here, we investigated in vitro and in vivo effects of TF on murine leukemia WEHI-3 cells. It was found that the growth of leukemia cells in vitro was inhibited by the various extracts of TF. Among these fractions, the dichloromethane (DCM) tuber extracts of TF showed the lowest IC₅₀ (24.0±5.2g/ml) and had demonstrated apoptogenic effect when observed under fluorescent microscope. We investigated the in vivo effects of DCM tuber extracts of TF on murine leukemia cells, and the results showed that the counts of immature granulocytes and monocytes were significantly decreased in peripheral blood of BALB/c leukemia mice after the oral administration of DCM tuber extracts of TF for 28 days with three doses (200, 400 and 800 mg/kg). These results were confirmed by observing the spleen histopathology and morphology of enlarged spleen and liver in leukemia mice when compared with the control. Furthermore, the cell death mechanism in the spleen tissue of treated mice was found via apoptosis.

Keyword: Apoptosis, BALB/c mice, Cytotoxicity, Typhonium flagelliforme, WEHI-3 leukemia cells