Apoptotic Activity of Diallyl Trisulfide in Cancer Cells

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Multiple myeloma is a B-cell malignancy characterized by the proliferation of plasma cells derived from B cells in the bone marrow. Several novel drugs and therapies have been explored as potential treatment options for myeloma, but the disease remains incurable. For centuries, garlic has been heavily used as a treatment for common illnesses but in recent years has been epidemiologically proven to exhibit an anticarcinogenic effect. This study assesses the effects of diallyl trisulfide (DATS), an organosulfur compound derived from garlic, on the viability and apoptotic activity in the multiple myeloma cell line OPM2. Performing a cell viability assay (MTS) and microscopy showed that increasing concentrations of DATS suppressed cell proliferation and induced morphological changes in the OPM2 cells treated for 24h. Flow cytometry analysis demonstrated that DATS induces apoptosis in a dose-dependent manner. Furthermore, a western blot analysis of protein samples from DATS-treated cells indicated that it triggered caspase-dependent apoptosis. These results suggest that DATS has antiproliferative properties through its induction of apoptosis in myeloma cells. It shows potential for future use as a chemotherapeutic agent to combat cancer.

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