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• **The Effect of Garlic Fractions on Raji (human Burkitt lymphoma) Cell Line**

Jamali D, Rahmati B, Gomari H, Askarian Z, Ghazanfari T

Immunoregulation Research center, Shahed University, Tehran, Iran

Background: *In vitro* and *in vivo* studies have proved that garlic (*Allium sativum*) components can inhibit cell proliferation in some specific types of cancer. On the other hand, garlic extract possesses immunomodulatory properties and induces lymphocyte proliferation. Thus, it is encouraging to study the effects of garlic on lymphoma which has both cancerous and lymphoid nature. In this study, the effect of garlic extract and its fractions on lymphoma Raji cell line were evaluated.

Materials and Methods: Peeled garlic was mixed in ratio of 1 g of garlic to 1 mL of distilled water. Garlic extract was then run through Amicon ultra-filter system. Extract was fractionated to six fractions based on their molecular weights: R100, R50, R30, R10, R5, and F5. MTT [3-(4, 5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazoliumbromide] reduction assay was used for cells viability assessment.

Results: The results illustrate that garlic extract and its fractions, in proper clinical dosage, does not have noteworthy cytotoxic effects on this cell line at 24h and 48h. At 72h, R100 and R30 fractions decrease cell viability remarkably. The immunomodulator fraction of garlic (R10), has no significant effect on Raji. Our results suggest that cytotoxic effect of garlic fractions is in dose and time dependent manner.

Conclusion: The most significant effects were observed, in some dilutions of R100 and R30 at 72h on Raji cell line. Although this finding is valuable, the effects of garlic extract and its fractions on the other malignancies were more remarkable and it may be due to lymphoid nature of this cell line.

Keywords: Garlic, Immunomodulator, cytotoxicity, Raji cell line, lymphoma