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The effects of aqueous extract of garlic (*Allium sativum* L.) on laryngeal cancer cells (Hep-2) and L929 cells in vitroHadjzadeh, M.A.I.R.^{ad}, Tavakol Afshari, J.^b, Ghorbani, A.^a, Shakeri, M.T.^c^a Department of Physiology, Mashhad University of Medical Sciences Mashhad, Iran^b Immunology Research Center, Mashhad University of Medical Sciences Mashhad, Iran^c Department of Social Medicine, Mashhad University of Medical Sciences Mashhad, Iran^d Department of Physiology, Medical School, Mashhad University of Medical Sciences, Mashhad, Iran

Abstract

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Objective: Garlic has been known as an important medicinal plant for centuries; it has been used widely as antibiotic, antidiabetic, antiatherogenic, anticancer and some other therapeutic properties. The anticancer effects of plant is due to inhibitory and cytotoxic effects of different compounds present in garlic. The aim of this study was to investigate the effects of aqueous extract of garlic on growth of human larynx carcinoma cell line (Hep-2) as case and normal mouse fibroblast cell line (L929) as control. Methods: Both cell lines were treated with 0.5, 1, 4, 8, 10 and 12 mg/ml of aqueous extract in culture medium for intervals of 24, 48 and 72 hours, when cells were studied under light inverted microscope for shape, granulation and anchorage independency. At the same time antiproliferative properties of the extract were determined by MTT colorimetric assay. Results: The data demonstrated inhibitory effects of aqueous extract at concentrations of 8, 10 and 12 mg/ml on both cell lines after 24 hours treatment. Inhibitory effects were stronger after 48 and 72 hours. Cell viability for both cell lines also were significantly reduced by MTT assay at 8, 10, and 12 mg/ml concentration of aqueous extract after all studied intervals. Conclusion: The results of this study demonstrate that the aqueous extract of this type of garlic exert inhibitory effects on growth of Hep-2 and L929 cell lines. Therefore, it seems that when garlic is used for anticancer purposes, other types of garlic or different extracts may be preferred that don't show cytotoxic actions on normal cells.

Reaxys Database Information

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Author keywords

Allium sativum L.; Aqueous extract; Cytotoxic; Garlic; Hep-2 cells; L929 cells; SCC

Indexed Keywords

EMTREE drug terms: ajoene; alliin; cytarabine; fludarabine

EMTREE medical terms: apoptosis; article; cell line; cell viability; garlic; HEp 2 cell; human; myeloid leukemia; squamous cell carcinoma

Species Index: Allium sativum

Chemicals and CAS Registry Numbers: ajoene, 92285-01-3; alliin, 556-27-4; cytarabine, 147-94-4, 69-74-9; fludarabine, 21679-14-1

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Lai, K.-C., Kuo, C.-L., Ho, H.-C.
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