

Essential Saffron Companion

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by John Humphries**

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At the Institute of Botany in Baku during the 1980's , Fikrat Abdullaev conducted further experiments with saffron extract. His interest was possibility of an inhibiting effect and of saffron's curative potential in cases of cancer and tumor. In 1990, as a result of an exchange program between the Academics of Sciences in the United States and the former Soviet Union, Dr. Abdullaev traveled to Rutgers University in New Jersey to further his research. He joined with Gerald Frenkel and his team at the Department of Biological sciences. The two doctors published three papers in English scientific journal *Bio Factors* in 1992-93 and quote from others papers, particularly Salomi and Nair, also published in the 1990's with their research into a curative effect of saffron in cases of cancer.

Abdullaev and Frenkel describe the background to their research: " to evaluate the effectiveness of some naturally occurring constituents of food in the prevention of cancer and the relationship between the ingestion of carotenoid contained in fruits and vegetables and the risk of certain forms of cancer". Their first paper, *Bio Factors* vol. 3, no. 3, is the result of their initial investigations into saffron's ability to prevent the cancer cells from forming colonies and proliferating. They recorded a 50% inhibition rate at 2 hours and 90% at 5 hours on cancer cells in test tubes. A greater inhibitory effect was also noted if cells were saffron prior to seeding with the various cancers.

They conclude by saying that "the pharmacological bases of saffron are unknown, studies are currently in progress to identify the active compound(s) in saffron extract and to define their mode of action".

"Saffron extracts have previously been shown to contain many compounds including carotenoids such as crocin and crocetin, which are believed to

exert a toxic effect on tumor cells". They also note that safety of saffron) has been effectively demonstrated by frequent consumption by large number of people over long periods of time".

In their second paper (vol.4 no. 1), they state that "over 600 potential chemopreventive agents have been identified and some of these might be utilized as anticancer drugs in the future". Saffron extract has been shown to significantly prolong the lifespan of tumor-bearing mice, including those with sarcoma 180, Ehrlich ascites carcinoma and Dalton's lymphoma ascites tumors. It has been shown to inhibit chemically induced carcinogenesis and the growth of transplanted tumors. They also say that its widespread use in food indicates that it is likely to possess relatively low toxicity. It is interesting in this regard that the saffron extract has also been shown to ameliorate some of the toxic side effects of cisplatin and cyclophosphamide, widely used chemotherapeutic agents (Nair et al, 1991).

Dr. Abdullaev is the author of the third paper, *The Biological Effects of Saffron, Bio Factors vol. 5 no. 2*. In it, he reviews all the literature concerning the biological activities of saffron, pointing out the numerous studies that have now revealed that it possesses cytotoxic, anticarcinogenic and antitumor properties in laboratory experiments. The possible mechanism of saffron action, he says, is as yet poorly understood. The most consistent observation regarding saffron's mode of action has been its inhibiting effect on nucleic acid (the agent that transfers the genetic code) of tumor cells and the cells protein synthesis. He also states that in another study, saffron was shown to have an inhibitory effect on skin carcinogenesis in mice, by topical application. It delayed the onset and reduced the number of papillomas per animal.