



To Study on Properties, Structure, Biological Application and Nanoformulation of Saffron

Zahra Sayyar^{1,*} - Mahdieh mohaddes kamranshahi² – Mehdi Matlabi² – Hoda Jafarizadeh Malmiri³

¹ PhD student, Faculty of Chemical Engineering, Sahand University of Technology, Tabriz, Iran

² B.Sc student, Faculty of Chemical Engineering, Sahand University of Technology, Tabriz, Iran

³ Assistant Professor, Faculty of Chemical Engineering, Sahand University of Technology, Tabriz, Iran

*corresponding author : z_sayyar@sut.ac.ir

ABSTRACT

Saffron is produced from the dried styles of *Crocus sativus* L. which is unknown as a wild plant. The principal components of saffron are discussed, those responsible for its colour, odour and taste. Analysis and any possible toxicity are also mentioned. There is a long history of the use of saffron in the traditional medicines of many cultures. As a result of a variety of recent scientific investigations, there is now convincing evidence for the biological activity of saffron and its constituents. Crocin is a pharmacologically active component of *Crocus sativus*. It is an unusual water-soluble carotenoid responsible for the red color of saffron. The present study provides a comprehensive and updated report of investigations on bioactivities and biological application and nanoformulation of crocin.

Keywords: Saffron, Crocin, Nanoformulation, Antioxidant, Anticancer.

1. INTRODUCTION

Nowadays it is factual that prevention is more important than treatment. Currently, chemoprevention strategies are very attractive and have earned serious consideration as a potential means of controlling the incidence of disease. Conventional and newly developing treatment procedures such as chemotherapy, catalytic therapy, photodynamic therapy and radiotherapy have not succeeded in the outcome diseases, which has led researchers to investigate alternative treatment options [1]. Recently a new requirement has been felt in medical science and novel replacement sources instead of chemical drugs seems necessary [2].

Recent research suggests that many edible fruits, vegetables, herbs and spices contain chemicals that may reduce the incidence of cancer. Herbal medicines may be combined with conventional drugs for the treatment of many conditions [3]. Scientists and medical professionals have shown increased interest in this field, as they recognize the true health benefits of natural remedies [1].

Fortunately, in recent years, naturopathic medicine functions most often as supportive or complementary care is involved both the prevention and treatment of the disease has helped to decrease the morality of cancer [4].

Naturopathictherapies with conventional cancer treatment lead to enhance recovery time fromsurgery, reduce the side effects of conventional treatments, improve appetite, protect healthy cells and tissues when possible post chemotherapy or radiation, detoxify after use of potent conventional drugs and regenerate the body post conventional treatments [1].

An important element of chemo preventive drug development using plants is the accumulation and analysis of pertinent experimental data and purported ethnomedical (folkloric) uses for plants. It is also very important to note that suitable chemopreventive natural agents should have little or no toxicity, a high efficiency, to be orally administrable, to have a known mechanism of action and of low cost [4].

In recent times, in vivo and in vitro studies are in progress to find new biomedical activity of saffron and its ingredients. There are several reviews published in the past years about the phytochemical and biomedical uses of the saffron [1].