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Crocin, a carotenoid pigment of saffron inhibits the replication of HSV and HIV *in vitro*Sepehr Soleymani^{1,2}, Rezvan Zabihollahi¹, Sepideh Shahbazi¹ and Azam Bolhassani¹¹Pasteur Institute of Iran, Iran²High Institute for Research and Education in Transfusion Medicine, Iran

Human immunodeficiency virus type 1 (HIV-1) belonging to the retrovirus family is the major agent of acquired immunodeficiency syndrome as a public health problem in the world. There are more than 253 types of approved anti-HIV drugs, but further development of novel anti-HIV agents would be needed especially in low-income countries without anti-retroviral treatment. Some limitations of the recent viral therapies include high risk of resistant viruses, and adverse side effects in long-term therapy. Therefore, it is necessary for improvement of novel potent and safe anti-HIV drugs with decreased side effects especially tolerability and toxicity. Furthermore, other problem in treatment of HIV-infected patients is their susceptibility to *Herpes simplex virus* (HSV) infection; thus, both anti-HSV and anti-HIV drugs with novel modes of action are required. Recently, saffron components have been proposed to treat various pathological conditions. In this study, crocin, a major carotenoid of saffron, was extracted from the ethanolic saffron extract by adsorption chromatography using neutral aluminum oxide 90 active. Then, the anti-HSV-1 and anti-HIV-1 activities of crocin were assessed as well as its cytotoxicity *in vitro*. The data indicated that crocin was active against HIV-1 and HSV-1 virions at certain doses. Crocin inhibited the HSV replication at before and after entry of virions into Vero cells. Indeed, crocin carotenoid suppressed HSV penetration in the target cells as well as disturbed virus replication after entry to the cells. This sugar-containing compound extracted from saffron showed to be an effective anti-herpetic drug candidate. In general, crocin would be a promising anti-HSV and anti-HIV agent for herbal therapy against viral infections.

Recent Publications:

1. Bolhassani A, Khavari A and Bathaie S Z (2014) Saffron and natural carotenoids: Biochemical activities and anti-tumor effects. *Biochimica et Biophysica Acta*. 1845: 20-30.
2. Bolhasani A, Bathaie S Z, Yavari I, Moosavi-Movahedi A A and Ghaffari M (2005) Separation and purification of some components of Iranian saffron. *Asian Journal of Chemistry*. 17: 725-729.
3. Zabihollahi R, Namazi R, Aghasadeghi M R, et al (2012). The *in vitro* anti-viral potential of Setarud (IMOD™), a commercial herbal medicine with protective activity against acquired immune deficiency syndrome in clinical trials. *Indian Journal of Pharmacology*. 44: 448-453.
4. D'Alessandro A M, Mancini A, Lizzi A R, et al. (2013) *Crocus sativus* stigma extract and its major constituent crocin possess significant anti-proliferative properties against human prostate cancer. *Nutrition and Cancer*. 65: 930-942.

Biography

Sepehr Soleymani has graduated from Tehran University of Medical Science in Clinical Laboratory Science. Currently, he is a Master student of Medical Biotechnology in Blood Transfusion Organization and also as a Research Assistant in Pasteur Institute of Iran for 3 years. His activity focuses on natural and synthetic antiviral agents, drug delivery system and vaccine research.

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