



INSIGHTS INTO SAFFRON'S ANTI-INFLAMMATORY PROPERTIES; LAB STUDIES AND BEYOND

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ABSTRACT

Chronic diseases, often associated with inflammation pose significant health risks globally. Inflammation, whether acute, chronic, or subacute, profoundly influences the onset and progression of various illnesses, including cancer, obesity-related disorders, cardiovascular diseases, and depression. Our research aim is to investigate the complex mechanisms of inflammation through laboratory studies to learn more about the therapeutic effects of saffron (*Crocus sativus* L.) and its potential to counteract possible negative effects regarding inflammation, particularly in a diabetes like stress environment by initiating curing mechanisms on molecular and cellular level. Utilizing *Drosophila melanogaster* as a key animal model species, the research aims to estimate the viability and the development of the fly individuals. This study begins with the preparation of saffron extract in Gemmotherapy Extracts (GTE) form. Subsequent analysis of the extract's phytonutrient profiles using UHPLC-ESI-MS enables precise identification and quantification of its diverse phytonutrients. Moreover, determination of total polyphenolic and flavonoid content provides insights into its phytochemical activity. We were estimating the saffron GTE associated physiological effects under normal, restrictive, and diabetic nutritive diet. Our experiments have revealed some interesting effects that will be presented.

Keywords: *Crocus Sativus L.*, anti-inflammatory, therapeutic potential, phytonutrient profile, *Drosophila melanogaster*