

Functional plant foods and medicinal herbs provide a wide variety of natural products for new drug research and development. Crocetin and crocin (digentiobiosyl ester of crocetin) are the major bioactive ingredients of saffron which is used as a costly spice, food colorant and traditional herbal medicine. These particular carotenoids have gained much research attention for their extensive pharmacological activities. Following oral administration, crocetin is rapidly absorbed into the blood circulation and widely distributed into the extra-vascular tissues of the body, whereas the water-soluble compound crocin is hardly absorbed through the gastrointestinal tract. Crocetin and crocin have been shown to be effective in the prevention and/or treatment of several diseases such as atherosclerosis, myocardial ischemia, hemorrhagic shock, cancer and cerebral injury. The compounds exert their biological and pharmacological effects largely through their strong antioxidant activity. However, there seems to be substantial variation in the effectiveness of both phytochemicals when used in different diseases. The aim of this review is to discuss the pharmacokinetic and medicinal properties of crocetin and crocin based on related literature and our research results.