**Chemical Fingerprinting of Commercially Available Saffron: High-Performance Thin Layer Chromatography**

**(Chemical Fingerprints of Saffron using HPTLC)**

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**Abstract**

Saffron (*Crocus sativa* L.) is a high-value medicinal and culinary plant that produces the most expensive spice in the world. Due to its low per kilogram yield, fastidious cultivation and post-harvest requirements, and very high economic value, saffron is subject to adulteration to enhance its color and flavor. Spectrophotometric and chromatographic techniques have been tested to separate and identify the composition of saffron. Few studies have reported use of high-performance thin-layer chromatography (HPTLC) for qualitative and quantitative analysis of saffron and its major compounds safranal, picrocrocin and crocin. The objective of this study is to a comprehensive fingerprint profile of saffron cultivated across the world using HPTLC. Ethanolic extracts of commercially available saffron samples were spotted on pre-coated silica gel HPTLC plates and developed using a 2-propanol, ethyl acetate, water (13:5:2 v/v/v) solvent system and scanned at 254 nm and 310 nm. Peaks and Rf values were obtained using CAMAG vision CATS software (CAMAG, Switzerland). The HPTLC fingerprints for each of the nine samples were recorded and are presented. Studies using HPTLC to quantify active ingredients in saffron, such as safranal, picrocrocin and crocin, are ongoing.