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Letter to the Editor

Effect of *Crocus sativus* L. (Saffron) on Selected Cardiometabolic Traits in Healthy Young Men

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Dear Editor-in-Chief

In this paper, we report the effect of acute saffron (SAF) dose on selected cardiometabolic traits in healthy young men. SAF, the dried red-orange stigmas of *Crocus sativus L.* is a small perennial plant derived from the Iridaceae family. This herb is native to Iran. The most essential bioactive components of SAF are picrocrocin, crocin and flavonoids (1). It has been applied in traditional medicine as anti-depressant, analgesic, anticonvulsant, anti-inflammatory, antioxidant, and anti-diabetic agent (2). Cardiovascular protective effects of SAF and its constituents have been investigated in several human trials (3). However, the majority of studies affect clinical patients such as subjects with metabolic syndrome and type 2 diabetes using chronic SAF administration (4).

To the best of our knowledge, no studies have evaluated the acute SAF effect in healthy subjects. In the present study, we investigated the effect of single SAF supplementation on systolic (SBP) and diastolic (DBP) blood pressures, as well as blood glucose (BG) and heart rate (HR) in healthy active youths.

Forty-four active young males (mean ± SD: age, 21.0±1.41 yr.; height, 1.75±0.09 m; body mass, 71.0±8.69 kg; body mass index, 23.2±2.13 kg/m^2) volunteered in a double blind randomized study. Soft capsules identical in their appearance were filled with 300 mg SAF powder or 300 mg lactose powder by a pharmacist. An independent investigator allocated participants to SAF or lactose as placebo (PLB) with one-week washout period. Blood pressure, HR and BG were measured after two hours of SAF and PLA sessions (5) using an arm tensiometer (Exacto KD 591, Biosynex, France), heart rate monitor (Polar, Lake Succes, NY) and blood glucose monitor (Accu-Check Performa, Roche, Germany), respectively.

The study was fully approved by the local Ethics Committee of High Institute of Sports and Physical Education of Kef (UR13JS01), conducted in accordance with the Helsinki Declaration and a signed informed consent was provided by all participants before study admission.

SBP (121±4.82 *vs.* 119±3.42 mm.Hg, *P*=0.009) was significantly lower after SAF intake in comparison with PLB intake. However, no significant differences were observed for HR (97.57±4.52 *vs.* 96.89±4.71 batt/min, *P*=0.276), DBP (77.09±2.17 *vs.* 76.77±1.98 mm.Hg, *P*=0.430)

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and BG (0.93±0.05 *vs.* 0.93±0.04 g/L, *P*=0.819) in PLB session compared to SAF.

Our results demonstrated that acute SAF reduce blood pressure, but has no significant effect on HR and BG. Available studies had used prolonged SAF intake and had demonstrated that chronic SAF reduced blood pressure in patients with type 2 diabetes (4) and in healthy subjects (6). We consider that blood pressure lowering effect of SAF might be explained by its inhibitory effects on heart rate and contractility and vasodilatory effects (7). Chronic intake of SAF or its components reduce blood glucose in diabetic rats (8). Moreover, a human study showed the hypoglycemic effect of SAF extract in clinical patients (9). The hypoglycemic effect of SAF extract seems to be performed by stimulation of glucose uptake and inhibition of intestinal glucose absorption (10).

In summary, the present study provides evidence that nutritional SAF reduce blood pressure in healthy subjects. These findings suggest that SAF might be useful in hypertension.

Acknowledgments

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