**The effect of the extract of *Crocus sativus* on tracheal responsiveness and plasma levels of IL-4, IFN-γ, total NO and nitrite in ovalbumin sensitized Guinea-pigs**

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**Abstract**

**Ethnomedical relevance**

Anti-inflammatory, anti oxidant and effect of *Crocus sativus* (*C. sativus*) on Th1/Th2 balance were described previously.

**Aim of the study**

The preventive effects of the extract of *Crocus sativus* on tracheal responsiveness and plasma levels of IL-4, IFN-γ, total NO and nitrite were examined on sensitized guinea pigs.

**Materials and methods**

Five groups of sensitized guinea pigs to ovalbumin (OVA), were given drinking water containing three concentrations of the extract of *Crocus sativus*, dexamethasone (S+D) or alone (group S). Tracheal responses (TR) of control animals (group C) and sensitized guinea pigs (*n*=6, for each group) to methacholine, OVA and the levels of IL-4, IFN-γ, total NO and nitrite in serum were examined.

**Results**

The TR to both methacholine and OVA, the levels of serum IL-4, total NO and nitrite in S guinea pigs were significantly increased but that of IFN-γ and IFN-γ/IL-4 ratio (Th1/Th2 balance) were decreased compared to the controls (*p*<0.05 to *p*<0.001). In the treated animals with dexamethasone and all concentrations of the extract, TR to both methacholine and OVA, IL-4, total NO and nitrite were significantly decreased but IFN-γ and IFN-γ/IL-4 ratio increased compared to S group (*p*<0.05 to *p*<0.001). The effects of the highest concentration of the extract was greater than those of other concentrations and the effect of dexamethasone (*p*<0.05 to *p*<0.01).

**Conclusions**

These results not only showed a preventive effect of C. sativus extract on tracheal responses and serum levels of inflammatory mediators in sensitized guinea pigs but also showed increased Th1/Th2 balance.