Antispasmodic effect of osthole and coumрин rich extract of 
_Prangos ferulacea_ (L.)Lindl.on the rat isolated ileum

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**Background and Aims:** Osthole is a prenylated coumarin isolated from Prangos. Prangos ferulacea is a plant found in the Mediterranean and Middle-east regions used as carminative, anti-flatulent, emollient and antibacterial herb. It is believed that the coumarins are responsible for some of known effects of Prangos. In this research the relaxant effect of osthole and Prangos ferulacea extract was investigated on rat ileum contraction in vitro.

**Methods:** Strips of ileum were mounted for isotonic recording under 1g tension in Tyrode’s solution, maintained at 37°C and gassed with O₂. Relaxant effect of osthole and Prangos ferulacea extract were examined on contraction induced by KCl, acetylcholine (ACh) and electrical field stimulation (EFS) and compared with propantheline and nifedipine.

**Results:** The acetonic extract of P. ferulacea concentration-dependently relaxed ileum contraction induced by KCl (IC\(_{50}\)= 1.3±0.25 µg/ml), ACh (IC\(_{50}\)= 7.7±1.1 µg/ml) and EFS (IC\(_{50}\)= 8.8±1.4 µg/ml). However, the extract at lower concentration (4 µg/ml) potentiated the ACh and EFS responses. Unlike the extract, osthole did not potentiate the ileum contraction but concentration-dependently inhibited ileum contractile responses to KCl (IC\(_{50}\)= 2.2 ± 0.7 µg/ml), ACh (IC\(_{50}\)= 2.5±0.7 µg/ml) and EFS (IC\(_{50}\)= 2.8±0.24 µg/ml). Propantheline concentration dependently inhibited the ileum response to ACh, with IC\(_{50}\) value of 0.61 ± 0.09 nM without affecting the KCl response. As expected, the EFS response was only partially reduced. Nifedipine (0.2-50 nM) inhibited tonic contraction induced by KCl with IC\(_{50}\) value of 2.5 ± 0.8 nM. However, nifedipine only partially inhibited the response to ACh. Nifedipine had a weaker inhibitory effect on the EFS response and at concentration which abolished the response to KCl, the response to EFS was reduced by 33%.

**Conclusions:** These results confirmed both potentiatory and inhibitory action of P. ferulacea extract on rat ileum contractile activity. Osthole is responsible for the inhibitory effect but potentiating components are not yet known.

**Keywords:** Prangos ferulacea; Osthole; Ileum; EFS; ACh; KCl