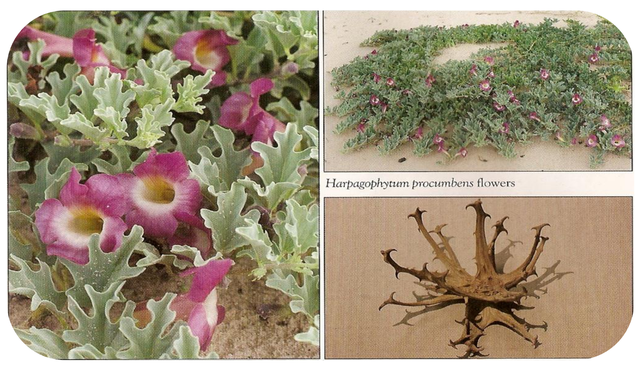
Determination and pharmacokinetic data of harpagoside in equine plasma after intragastric administration of an extract of *Harpagophytum procumbens* (Devil´s claw) by means of LC/MS/MS

Axmann S.[1], Hummel K.[2], Nöbauer K.[2], Razzazi-Fazeli E.[2], Franz Ch.[1], Zitterl-Eglseer K.[1]

[1] Institute for animal nutrition and functional plant compounds, University of Veterinary Medicine Vienna, Vienna, Austria
[2]Technology Platform VetCore, University of Veterinary Medicine Vienna, Vienna, Austria

Figure 1
Harpagophytum procumbens



Introduction

Harpagophytum procumbens (Devil´s claw) is used for the medical treatment of chronic inflammatory and degenerative disorders [1] and for prevention of inflammatory symptoms in horses since many years, but without the substantive equine pharmacokinetic data [2], [3].

Aim

The aim of the present study was the evaluation of the pharmacokinetic parameters of harpagoside, the main characteristic marker of devil´s claw, in equine plasma.

Method

Six healthy horses received a single dose of a *Harpagophytum* extract, containing 5 mg/kg harpagoside (group 1) and 10 mg/kg (group 2) via nasogastric tube. An open, single-dose, two-treatment, two-period, randomised cross-over design was used. A 7 days washout period was arranged between the administrations. Plasma samples were cleaned up by solid-phase extraction (SPE) and harpagoside was determined by LC/MS/MS using apigenin-7-glucoside as internal standard.

Results

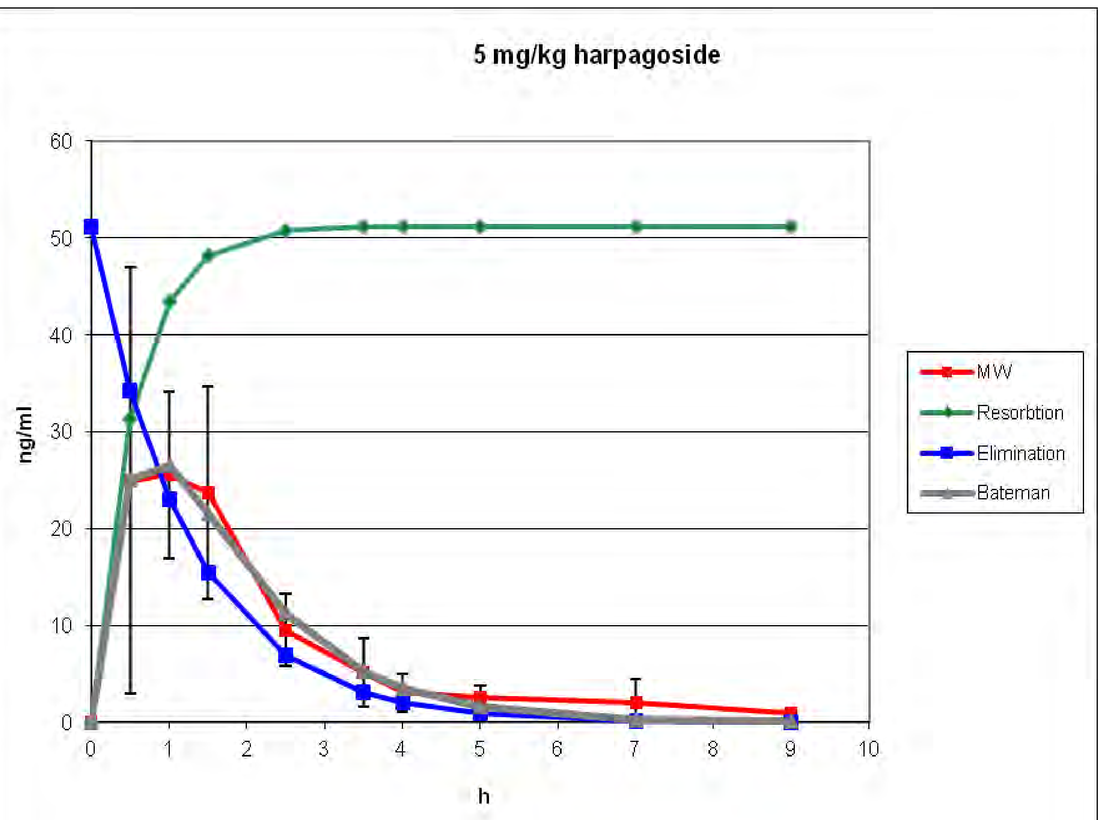
After single oral administration of the devil´s claw extract via nasogastric tube the mean maximum levels of harpagoside were found at C_{max}=27.24 ng/ml (group 1) and 59.07 ng/ml (group 2), respectively, after 0.68 h (group 1) and 0.79 h (group 2).

The elimination of harpagoside from the equine plasma was fairly rapid with a mean elimination half- life ($t_{1/2}$) of 0.49 h (group 1) and 0.87 h (group 2). Harpagoside could be detected up to 9 hours after oral administration by the established method. A proportional relationship between dose and the first maximal concentration (C_{max}) was observed. (Figure 2)

Conclusion

The knowledge of basic pharmacokinetics of devil´s claw in horses, based on the results of this study, will help to link results from *in vitro* assays and clinical studies.

Figure 2
Pharmacokinetic data of harpagoside in equine plasma after intragastric administration of an extract of *harpagophytum procumbens* (Devil´s claw)



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[2] Loew D., Möllerfeld J., Schrödter A. et al.: Investigations on the pharmacokinetic properties of *Harpagophytum* extracts and their effects on eicosanoid biosynthesis in vitro and ex vivo. Clinical pharmacology and therapeutics 2001;69:356-364
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The study was discussed and approved by the institutional ethics committee (GZ BMWF-68.205/0109-II/10b/2009).

Internationale Tagung Phytotherapie Juni 2014, Winterthur, Schweiz