Pharmacokinetics of *Petasites hybridus* leaf extract Ze 339 after oral administration in healthy horses

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Recurrent airway obstruction (RAO) is a common disease in stabled horses with complex treatment. *Petasites hybridus* leaf extract Ze 339 (Carbon dioxide extract of *Petasites hybridus* (L.) Gaertn., B. Mey. et Scherb.) has anti-inflammatory activity [1, 2, 4], approved leukotriene inhibiting properties [1-4] and suppresses smooth muscle constriction [2]. These properties make the extract an interesting option for RAO treatment. The aim of the present study was to collect data of the pharmacokinetic properties of *P. hybridus* leaf extract Ze 339 in horses. Additionally urine samples were analysed to evaluate the renal clearance.

**Material and Method**

*P. hybridus* leaf extract Ze 339 (6.5% total petasin concentration) was administered as oily suspension via nasogastric tube to two healthy horses (686 kg and 559 kg body mass (bm)). Dosage of horse 1 was 0.64 mg/kg (bm) petasins and of horse 2 it was 2.56 mg/kg (bm). Blood and urine samples were taken before and at various time points after drug administration. Inner body temperature, heart rate and respiratory rate were measured to monitor physiological effects after the drug application. Samples were analysed by LC-MS/MS.

**Results**

The findings of the present study are demonstrating that horses are able to resorb oral administered *P. hybridus* leaf extract Ze 339 without any negative side effects. Dosage 1 had a Cmax of 56.7 pg/ml at tmax of 1 h. Dosage 2 had a Cmax of 673 pg/ml at tmax of 0.5 h. Results are presented in Figure 1 and 2. The urine samples showed distinct petasin peaks, exact levels however were not yet reliably quantifiable.

![Figure 1: Pharmacokinetic of horse 1](image1)

![Figure 2: Pharmacokinetic of horse 2](image2)

**Conclusion**

Although the concentration is very low, petasins (iso-, neo and petasin) were detected in both dosages. This is the first evidence for a successful absorption of *P. hybridus* leaf extract Ze 339 in the equine body. Further studies are needed to evaluate the correlation between plasma levels and clinical efficacy and the possible interaction with intestinal immune cells prior to petasins entering the blood. Studies to proof the influence of bioavailability are needed. Finally, studies should be performed showing beneficial effects in RAO with doses applied.

**References**


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