Sesquiterpene lactone-containing extracts from two chicory cultivars show different anthelmintic activity in vitro against *Ostertagia ostertagi*

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**Background:**
- Mechanisms behind in vivo anthelmintic (AH) effects of forage chicory are poorly understood
- Bioactive plant compounds like sesquiterpene lactones (SL) are believed to play a role
- Lacking evidence of direct activity of well-characterised SL-containing extracts towards parasitic nematode stages and against cattle nematodes

**Objective:**
- To test the direct inhibitory activity of SL from two forage chicory cultivars on free-living and parasitic stages of the pathogenic cattle nematode *Ostertagia ostertagi*

**Results:** Larval feeding inhibition assay (LFIA)
- Both extracts demonstrated a dose-dependent inhibition of larval feeding
- Spadona extract was 4-fold more potent than Puna II extract (P<0.0001)

**Results:** Chemical profile SL-containing extracts by LC
- Chemical characterisation by LC of extracts from chicory 'Spadona' (A) and 'Puna II' (B)

**Results:** Adult motility inhibition assay (AMIA)
- Both extracts demonstrated a dose-dependent inhibition of worm motility
- Spadona extract showed a significantly higher potency and exerted faster worm paralysis than Puna II extract at all time points (P < 0.0001)
- No morphological damage was observed in the cuticle of chicory exposed worms (scanning electron microscopy)

**Conclusions:**
- SL-containing extracts from forage chicory induced direct and dose-dependent inhibitory effects against feeding and motility of *O. ostertagi* L3 and adults, respectively, but not on the exsheathment of L3
- Distinct AH activity and SL-profiles were detected in extracts from two chicory cultivars. This may help to identify the most active anti-parasitic compound(s)

**Further research:**
- Mechanisms of AH action of SL-containing extracts from chicory?
- Are different AH activities between cultivars preserved in vivo?
- Are SL the only anti-parasitic compounds in forage chicory?

**Acknowledgments:**
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*Research funded by EMIDA ERA-NET, Becchi-CPH2012-11, 30 million Euros.*

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