



Investigating anti-parasitic effects of plant secondary metabolites : effects on swine nematodes

Andrew Williams, Miguel Peña, Christos Fryganas*, Honorata Ropiak*,
Aina Ramsay*, Irene Mueller-Harvey*, Stig Milan Thamsborg

IVS, KU-SUND, Denmark

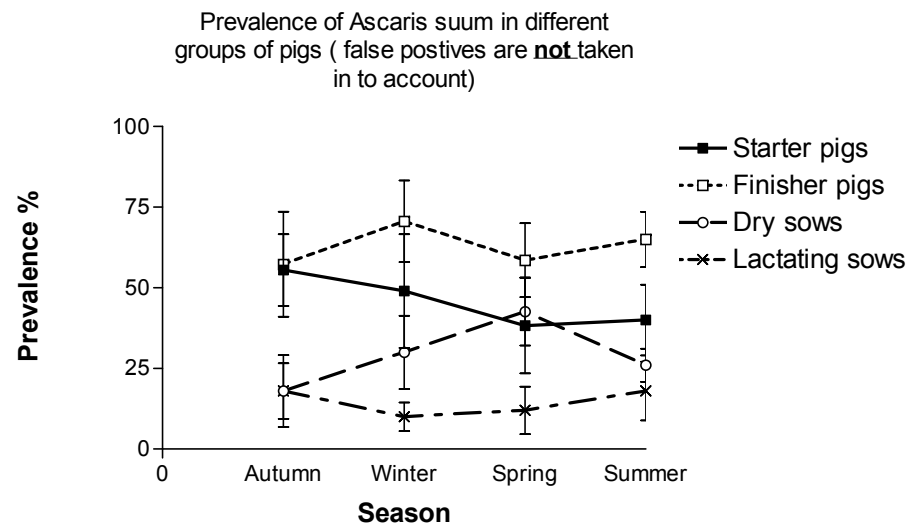
*University of Reading, UK

EAAP 26-4-14



Our research group:

- Focuses on novel strategies to control parasite infections in livestock
- Strong emphasis on pig parasites

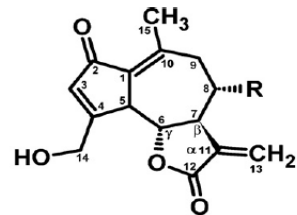


Plant secondary metabolites

- Bioactive compounds – wide range of effects on host metabolism:
 - Antioxidant
 - Immuno-modulatory
 - Promote wound healing
- Direct antimicrobial effects (bacteria, protozoa)
- Anthelmintics...



Many plants contain secondary compounds...



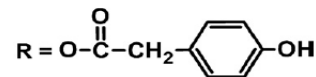
lactucin

R = OH

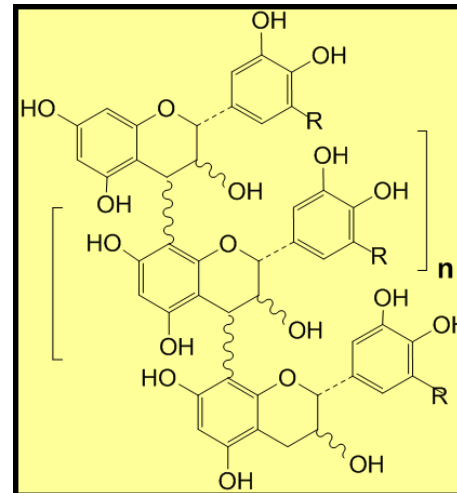
8-deoxylactucin

R = H

lactucopicrin



Foster, *et al.* 2011. *Vet Parasitol* 180, 298 - 306



Objective



Extract with acetone and water



Size fractionation into two fractions



In vitro assays to determine direct effects on worms



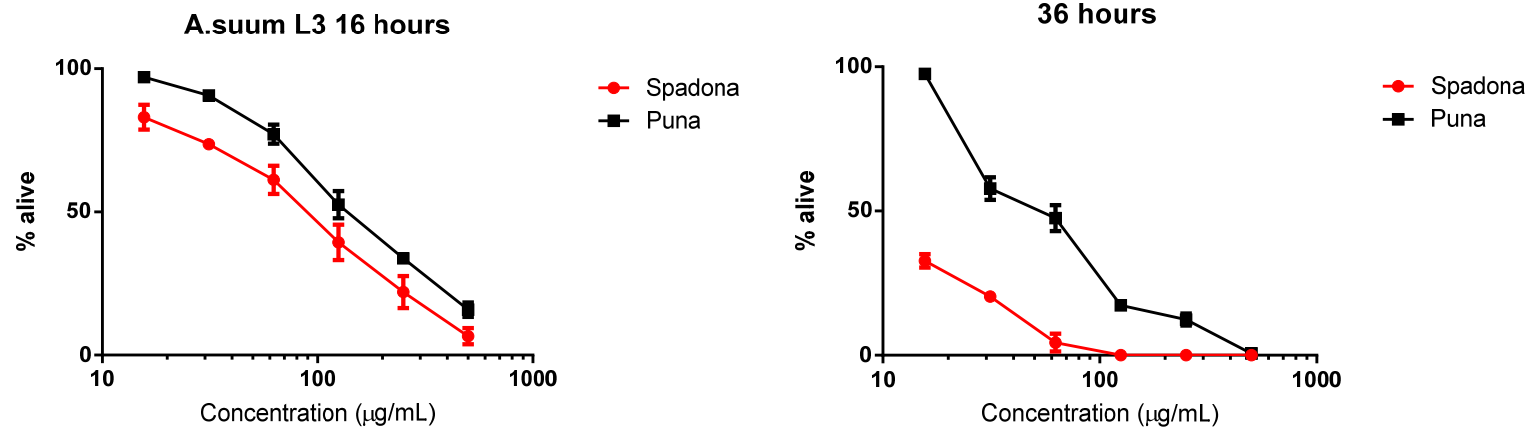
Extract with methanol



Purify on C18 column

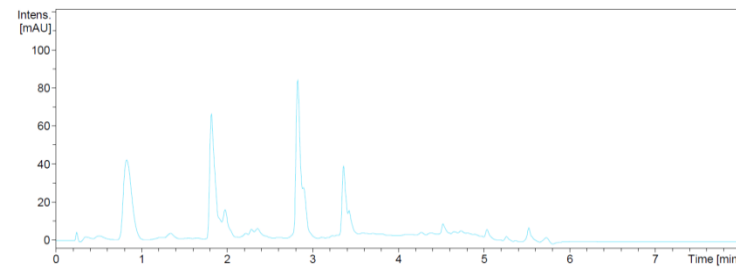
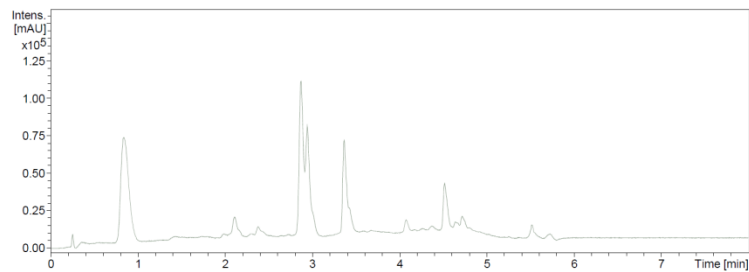
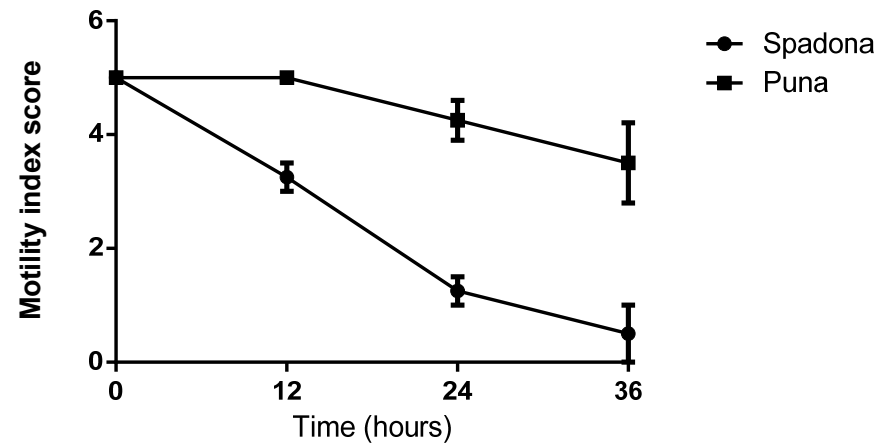


Results



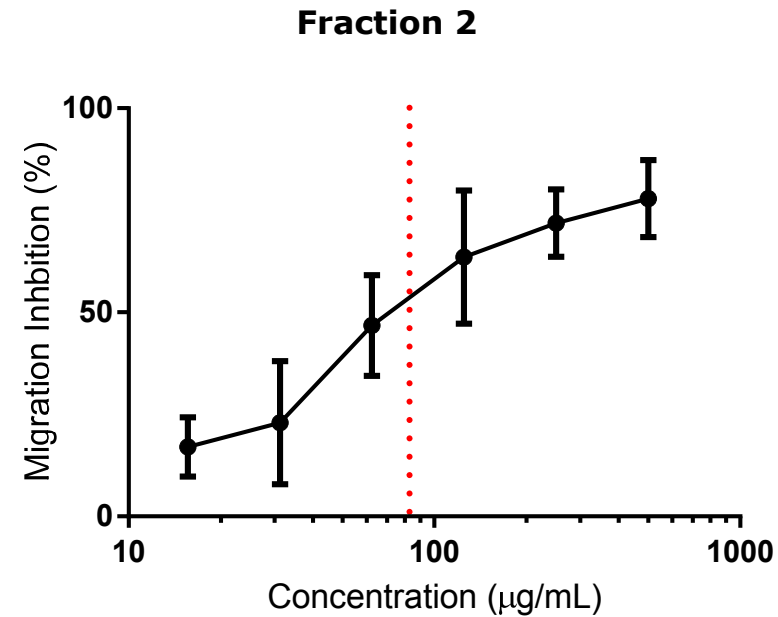
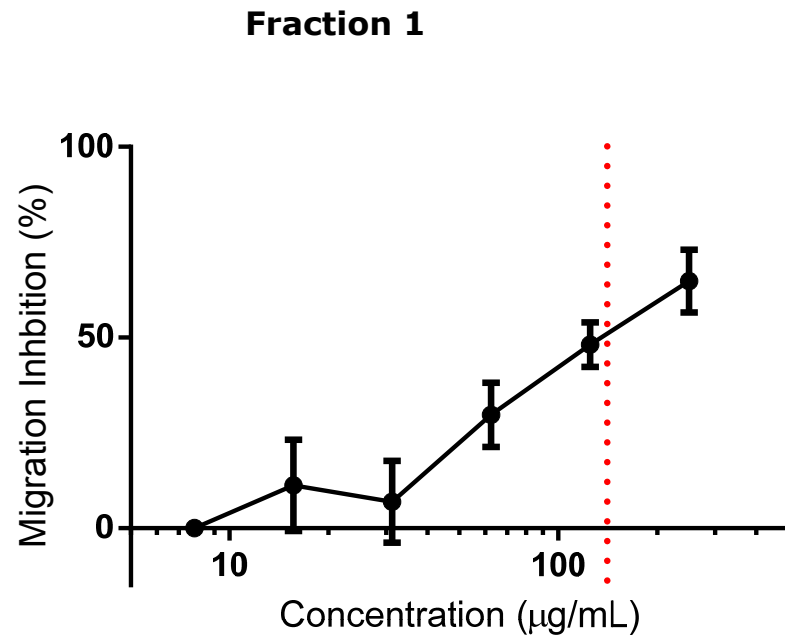
Results

O. dentatum

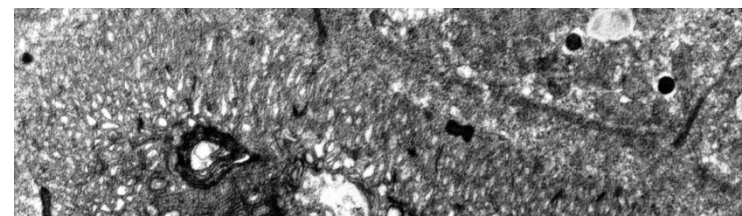
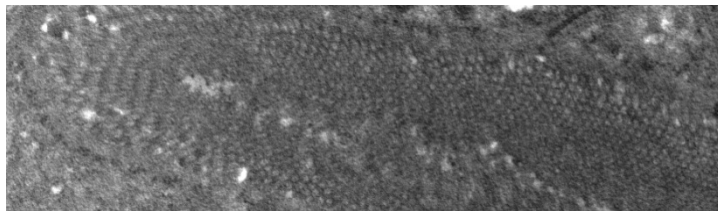
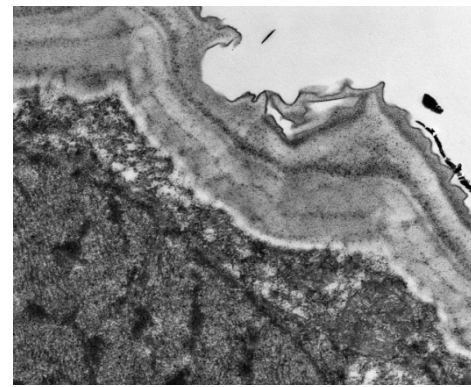
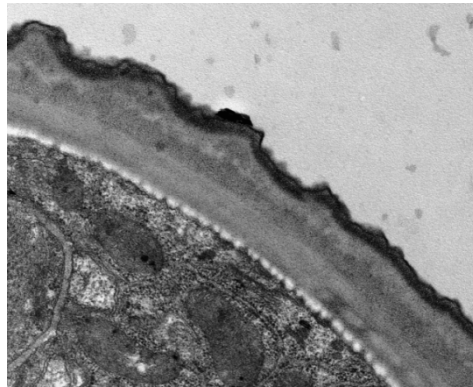


Condensed tannins from cocoa beans

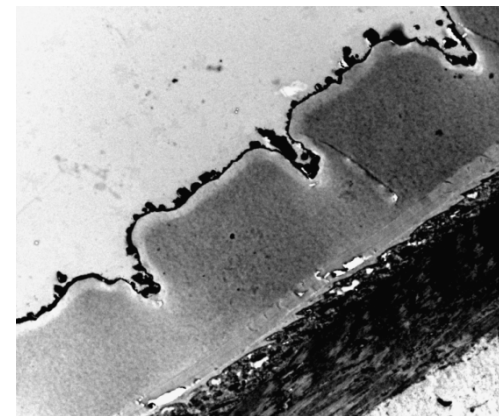
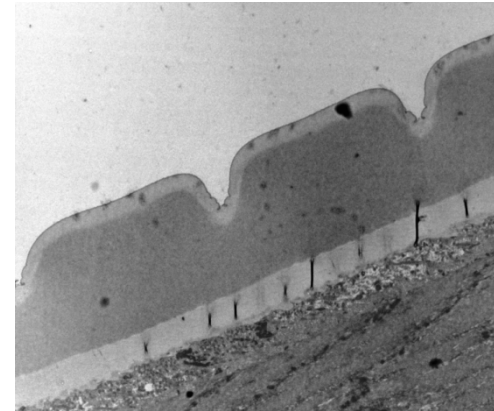
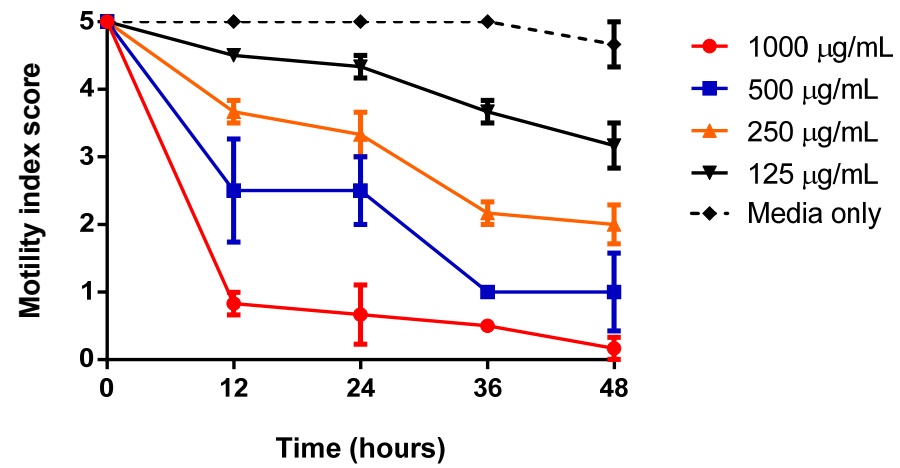
Inhibit migration of *Ascaris suum* L3 in a dose dependent manner



Condensed tannins from cocoa beans



Results



Conclusions so far

- Chicory and tannin-containing materials show promise as natural anti-parasitic feed diets and/or feed additives
- Further *in vivo* and on-farm work is necessary to determine efficacy and cost-benefit analyses



Thank you



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Marie Curie Initial Training Network

