

Extract from Norwegian spruce bark against *Eimeria* in lambs

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Abstract

Coccidiosis is a serious disease in young lambs in Norway. Resistance against commercial anticoccidial chemicals has been demonstrated in conventional sheep farming. In organic farming we are looking for natural plant sources as alternatives to synthetic chemicals to increase animal health and welfare. Condensed tannins (CT) from different plants have showed effect against nematodes and coccidia in several trials.

Extract from Norwegian spruce bark, a waste product from the wood industry, was shown to contain CT in a Norwegian study. In our trial we tested bark extract from spruce against *Eimeria spp* in young lambs. The extract was produced in a mobile pilot plant at SINTEF, by using water (80 °C), before evaporation and freeze drying. The outcome of 240 kg fresh bark was 300 g CT(DM). 25 naïve lambs were randomly grouped, 16 of them were inoculated with 100 000 *Eimeria* oocysts each at 3 weeks of age, and 8 of the 16 were treated with extract for 12 days. CTg per lamb per day correspond to 0,027% BMW.

Individually faeces samples were collected and analysed for faecal score and oocysts. Clinically observations and weight gain were measured.

In this trial the bark extract was found to have a significant effect on the development of coccidia of *Eimeria spp* in the lambs, measured by the consistency of the faeces and by counting oocysts ($p < 0,001$).

The extract was given by a stomach tube, and the bark had a negative effect on the lambs appetite as long as it was administered.

Conclusions

Bark extract from Norwegian spruce may be a potential useful anticoccidium in lambs, but we need more research to see if this effect is due to CT or other biological components, if the effect is permanent and how the results can be transformed to practical use.

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