Journal of Helmintology

Predatory activity of the fungus *Duddingtonia flagrans* on infective larvae of gastrointestinal nematodes from dairy heifers raised in a silvopastoral system

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**Supplementary file**

**Table S1**. Recovery of infective larvae from pasture samples (upper and lower), fecal pad, and soil at the four collections by groups.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Collection |  | Upper Pasture | | | | | | | | |
|  | Treated group | | | |  | Control group | | | |
|  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |
| 1 |  | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 3 |
| 2 |  | 3 | 0 | 0 | 0 |  | 0 | 0 | 0 | 23 |
| 3 |  | 0 | 0 | 0 | 1 |  | 14 | 0 | 0 | 31 |
| 4 |  | 2 | 0 | 0 | 0 |  | 5 | 0 | 0 | 0 |
| Collection |  | Lower Pasture | | | | | | | | |
|  | Treated group | | | |  | Control group | | | |
|  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |
| 1 |  | 6 | 0 | 0 | 4 |  | 1 | 0 | 0 | 0 |
| 2 |  | 1 | 0 | 1 | 5 |  | 4 | 0 | 0 | 24 |
| 3 |  | 0 | 0 | 0 | 1 |  | 5 | 0 | 0 | 40 |
| 4 |  | 3 | 0 | 0 | 0 |  | 6 | 0 | 0 | 0 |
| Collection |  | Fecal pad | | | | | | | | |
|  | Treated group | | | |  | Control group | | | |
|  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |
| 1 |  | 2 | 0 | 0 | 8 |  | 1 | 0 | 0 | 8 |
| 2 |  | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 38 |
| 3 |  | 11 | 0 | 2 | 66 |  | 92 | 7 | 15 | 86 |
| 4 |  | 3 | 0 | 0 | 5 |  | 3 | 0 | 0 | 20 |
| Collection |  | Soil | | | | | | | | |
|  | Treated group | | | |  | Control group | | | |
|  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |  | *Haemonchus* spp. | *Trichostrongylus* spp. | *Ostertagia* spp. | *Cooperia* spp. |
| 1 |  | 0 | 0 | 0 | 2 |  | 0 | 0 | 0 | 0 |
| 2 |  | 0 | 0 | 0 | 2 |  | 0 | 0 | 0 | 0 |
| 3 |  | 4 | 0 | 0 | 11 |  | 9 | 0 | 0 | 4 |
| 4 |  | 1 | 0 | 2 | 0 |  | 2 | 0 | 1 | 4 |

**Table S2** Details of the generalized linear mixed models of the influence of group (treated and control) on non-predated infective larvae (L3/ Kg DM) from pasture (upper and lower), fecal pad, and soil at the four collections, with the bolo and conditions as a random effect.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Upper pasture | | | | | |
| Collections | Parameter | Estimate | SE | z value | p-value |
| 1 | Control | Ref. | - | - | - |
| Treated | -0.003703 | 0.00000 | 0.0000 | 1 |
| Random intercept (condition) variance: 14.51; SD:3.809 | | | | |
| 2 | Control | Ref. | - | - | - |
| Treated | -11.053 | 2.738 | -4.037 | <0.001 |
| Random intercept (condition) variance: 378.207; SD: 19.448 | | | | |
| 3 | Control | Ref. | - | - | - |
| Treated | -11.480 | 2.577 | -4.454 | <0.001 |
| Random intercept (condition) variance: 44.38; SD: 6.662 | | | | |
| 4 | Control | Ref. | - | - | - |
| Treated | -0.37429 | 0.06111 | -6.125 | <0.001 |
| Random intercept (condition) variance: 25.44; SD: 5.044 | | | | |
| Lower pasture | | | | | |
| Collections | Parameter | Estimate | SE | z value | p-value |
| 1 | Control | Ref. | - | - | - |
| Treated | -0.37713 | 0.09956 | -3.788 | <0.001 |
| Random intercept (condition) variance: 209.7394 SD:14.48238 | | | | |
| 2 | Control | Ref. | - | - | - |
| Treated | -210.725 | 0.05404 | -38.996 | <0.001 |
| Random intercept (condition) variance:156.2; SD: 12.5 | | | | |
| 3 | Control | Ref. | - | - | - |
| Treated | -12.124 | 3.377 | -3.590 | <0.001 |
| Random intercept (condition) variance: 0.002919; SD: 0.1709 | | | | |
| 4 | Control | Ref. | - | - | - |
| Treated | -7.909 | 3.584 | -2.207 | 0.02 |
| Random intercept (condition) variance: 0.002946; SD: 0.176 | | | | |
| Fecal pad | | | | | |
| Collections | Parameter | Estimate | SE | z value | p-value |
| 1 | Control | Ref. | - | - | - |
| Treated | -0.72921 | 0.03862 | -18.883 | <0.001 |
| Random intercept (condition) variance: 33.16; SD:5.76 | | | | |
| 2 | Control | Ref. | - | - | - |
| Treated | -0.003 | 0.0000 | 0.000 | 1 |
| Random intercept (condition) variance: 11.23; SD: 3.352 | | | | |
| 3 | Control | Ref. | - | - | - |
| Treated | -0.64552 | 0.00833 | -77.497 | <0.001 |
| Random intercept (condition) variance: 12.99; SD: 3.605 | | | | |
| 4 | Control | Ref. | - | - | - |
| Treated | -11.378 | 0.0166 | -68.525 | <0.001 |
| Random intercept (condition) variance: 0.01345; SD: 0.116 | | | | |
| Soil | | | | | |
| Collections | Parameter | Estimate | SE | z value | p-value |
| 1 | Control | Ref. | - | - | - |
| Treated | -0.008982 | 0.0000 | 0.00000 | 1 |
| Random intercept (condition) variance: 144.5; SD:12.02 | | | | |
| 2 | Control | Ref. | - | - | - |
| Treated | -0.00982 | 0.0000 | 0.0000 | 1 |
| Random intercept (condition) variance: 124.4; SD: 13.05 | | | | |
| 3 | Control | Ref. | - | - | - |
| Treated | 0.13585 | 0.04166 | 3.261 | 0.01 |
| Random intercept (condition) variance: 33.9; SD: 5.823 | | | | |
| 4 | Control | Ref. | - | - | - |
| Treated | -2.358 | 0.1611 | -14.638 | <0.001 |
| Random intercept (condition) variance: 144; SD: 12 | | | | |

P-value <0.05 indicates that there was an influence of the parameter on the variable of interest in relation to the reference (Ref.) category.