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ANTIFEEDANCY AND OLFATORY RESPONSE OF HORN FLIES TO LOLINE ALKALOIDS FROM TALL FESCUE-*Neotyphodium coenophialum* SYMBIOSIS

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ABSTRACT: The horn fly, *Haematobia irritans*, is an obligate bloodsucking ectoparasite of cattle and is the major global pest of livestock production. Currently, management of *H. irritans* is achieved using broad-spectrum insecticides. Although, because of the development of resistance, alternative control methods are necessary. Over the last decade, grasses symbioses with endophytic fungi has been studied as a control alternative, due to the grass-endophyte capability to biosynthesize alkaloids. Lately we described an indirect insecticidal effect upon *H. irritans* when cattle grazing on Tall Fescue pasture *Neotyphodium coenophialum* infected. Also, we demonstrated that peramine and lolitrem B from *N. coenophialum* were transferred to cattle dung, producing an insecticidal effect on larvae and pupae. It is well-known that peramine and loline alkaloids have been associated with potent effects on insects and low toxicity to grazing animals. However, information about the effect of loline alkaloids on adult flies is scarce. Here, we evaluated the antifeedancy and repellency of loline alkaloids obtained from *N. coenophialum*-infected Tall Fescue (E+). Horn flies were collected from steers fed on endophyte-free tall fescue pasture. The alkaloid extract (EALK) from Tall Fescue (E+) was obtained by acid-base extraction. N-acetyl loline/N-formyl loline mixture was obtained from EALK by pTLC and, loline was prepared by acid hydrolysis of lolines mixture. Lolines identification was performed by GC/MS. Feeding behaviour of horn flies was tested according to Zhu et al (2015), and olfactory response was evaluated using a Y-tube olfactometer. Accordingly, EALK and loline reduced horn fly feeding at 500 mg L⁻¹ and greater. NAL/NFL mixture reduced horn fly feeding at all doses evaluated and, EALK and NAL/NFL mixture exhibited spatial repellency in the olfactometer. Thus, loline alkaloids might be useful for adult horn fly control.