evaluated the eugenol efficacy against *H. contortus* adults.

Identification of the metabolic pathway involved in the synthesis of fumagillin from edible mushroom *Pleurotus djamor* MPG-05 genome

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Nematode resistance to nematicides affects animal health and sustainability, prompting interest in natural alternatives. Edible mushrooms, such as *Pleurotus djamor*, show potential due to their ability to produce secondary metabolites with nematicidal activity. Bioinformatics tools help identify genes and biosynthetic pathways involved in the production of these compounds. In the genome of *P. djamor* MPG-05, the genes involved in fumagillin biosynthesis were identified, a compound previously reported to inhibit nematodes. Therefore, the objetive was to identify genes involved in fumagillin biosynthesis in *P. djamor* MPG-05. To this end, functional annotation of *P. djamor* MPG-05 genes was performed using KofamScan v1.0.1, while biosynthetic gene clusters were predicted with the antiSMASH fungal version. The functional annotation results were then compared between these software tools to accurately identify the genes. As a result, genomic analysis of *P. djamor* MPG-05 revealed genes related to fumagillin biosynthesis, confirmed by KEGG and antiSMASH annotations. Fumagillin is known for its inhibitory effects on protozoa and nematodes. Overall, genomic analysis of *P. djamor* MPG-05 reveals biosynthetic gene clusters for secondary metabolites production with potential nematicidal activity, notably the fumagillin pathway.

***In vitro* infection of *Ctenocephalides felis felis* pupae by *Heterorhabditis bacteriophora* (HP88) and *Heterorhabditis indica* (LPP30)**

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Fleas are significant ectoparasites in veterinary medicine, with *Ctenocephalides felis* being the most common species infesting dogs and cats. These infestations can lead to anemia, irritation, and pruritus, while also acting as vectors for pathogens that cause diseases in mammals. Flea control involves manual removal, environmental chemical treatments, and topical or oral formulations for affected animals. However, improper use of chemical control has resulted in financial burdens, environmental contamination, and the emergence of resistant populations. Researchers are investigating alternative methods to regulate flea populations, either independently or alongside chemical solutions. Entomopathogenic nematodes (EPNs), long used in agricultural pest control, show promise in managing invertebrates of veterinary importance. This study evaluated the susceptibility of naked pupae and pupae within pupal cases of *C. felis felis* to *Heterorhabditis bacteriophora* (HP88) and *Heterorhabditis indica* (LPP30) un-

der laboratory conditions. Bioassays included two experimental groups, each consisting of 10 Petri dishes containing 11 naked pupae and 11 pupae within pupal cases per plate. Each received 600µL of a solution containing 1200 infective juveniles of *H. bacteriophora* and *H. indica*. Five control groups were established, receiving only distilled water. Susceptibility was assessed through dissection, detecting EPNs inside pupae. No EPNs were found in the control group. Exposure to *H. bacteriophora* resulted in 100% susceptibility in naked pupae and 55.44% in pupae within pupal cases, while *H. indica* exposure led to 98.18% susceptibility in naked pupae and 64.99% in pupae within pupal cases. Results confirm that both naked and pupal-case-protected pupae are vulnerable to HP88 and LPP30 infection. While susceptibility was higher in naked pupae, infections occurred in both cases, supporting further studies on EPNs as potential tools for flea biological control.

Effect of Lippia grata essential oil on larvae *Haemonchus contortus*

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The essential oil of *Lippia grata* may be a promising alternative for the control of gastrointestinal nematodes (GIN) in small ruminants, as it may present major compounds such as thymol, eucalyptol and ocimene, some of these compounds already tested on GIN. In addition, other species of this genus have already been tested on *Haemonchus contortus* and presented promising results. Therefore, the objective of this study was to evaluate the effect of *L. grata* oil on migration larvae of *H. contortus*. For this, *L. grata* samples were collected in Iguatu, Ceará, Brazil. After, the oil essential was extracted by hydrodistillation Clevenger type. The oil chemical analysis was performed by Gas Chromatography coupled to Mass Spectrometry (GC-MS). To evaluate the anthelmintic efficacy of oil, the larval migration inhibition test (LMIT) was performed. For the recovery of infective larvae (L3), stool cultures were performed with feces from an experimental animal infected with *H. contortus*. A 400 µL of L3 solution and 400 µL of oil solution at different concentrations (2; 1; 0.5; 0.25; 0.12 and 0.06 mg/mL) were incubated. After 18 h, the larvae exposed to oil were transferred to the migration apparatus. Then, the oil inhibition capacity on larval migration was evaluated for 24 h. The LMIT was performed with two replicates with five replicates for the controls (positive - ivermectin 0.25 mg/mL and negative DMSO 1.5%) and treatments. GC-MS showed thymol (66.23%), eucalyptol (12.33%), o-cymene (06.01%) and thymol acetate (1.24%) as main compounds. The mean and standard deviation of the efficacies obtained at the abovementioned concentrations were 94.29 ± 5.43%; 90.92 ± 1.32%; 88.08 ± 1.32; 61.27 ± 6.65; 31.93 ± 6.27 and 24.33 ± 5.87. The mean of the controls was: positive 92.35 ± 0.11 and negative 2.66 ± 0.3, respectively. The in