

TOXICOLOGICAL EVALUATION OF *LAVANDULA DENTATA* ESSENTIAL OIL IN THE ALTERNATIVE MODEL *CAENORHABDITIS ELEGANS*

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INTRODUCTION: Aromatherapy with lavender essential oil (EO) has become a relevant therapeutic practice, especially due to the anxiolytic effect of *Lavandula angustifolia* EO. However, the species *Lavandula dentata*, common and widely cultivated in Rio Grande do Sul, has been used for the same purpose despite the lack of scientific evidence regarding its efficacy and safety. EOs are produced by plants as a defense mechanism and adaptation to their environment, leading to chemical variations depending on the habitat. These variations can result in high concentrations of potentially toxic compounds. Therefore, it is essential to understand the toxicity of these EOs used by the population. **OBJECTIVE:** To evaluate the toxicity of *Lavandula dentata* essential oil using the alternative model *Caenorhabditis elegans* from a municipality in the Vale do Rio Pardo region. **MATERIALS AND METHODS:** The nematode strain used was N2 (wild type), fed with *Escherichia coli* OP50, and maintained in the bioanalysis laboratory at Feevale. After synchronization, 100 L1-stage nematodes were exposed in liquid medium to *L. dentata* EO. After 1 hour, the nematodes were transferred to NGM plates containing *E. coli*. The nematodes were exposed to the following linalool concentrations: 45, 90, 180, 360, and 720 µg/mL, and to 1,8-cineole concentrations: 160, 330, 660, 1,320, and 2,650 µg/mL. The control group was treated with an ethanolic solution. After 48 hours, survival rate and body length parameters were evaluated. **RESULTS AND CONCLUSION:** Toxicity assessment using the *C. elegans* alternative model showed that the EO causes significant developmental differences in nematodes starting at linalool concentration (45 µg/mL) and 1,8-cineole (160 µg/mL). It was found that increasing concentrations of linalool and 1,8-cineole are directly related to a reduction in nematode survival rate, with an LC₅₀ of 95.3 µg/mL. These data reinforce the importance of evaluating the safety of essential oils, especially those with variable compositions depending on their region of origin.

Keywords: *Lavandula dentata*, Essential Oil, *Caenorhabditis elegans*