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INSECTICIDAL EFFECTS OF *Rosmarinus officinalis* ESSENTIAL OIL ON *Pristiphora abietina* LARVAE

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Abstract

Today, *Pristiphora abietina* is known worldwide as an essential forest pest damaging spruce needles. Essential oils are of increasing interest because of the increased risk of chemical contamination with synthetic pesticides to control pests. The chemical constituents of essential oils of flowers and leaves of *Rosmarinus officinalis* were produced with steam distillation in Clevenger apparatus in this study. Gas Chromatography-Mass Spectrometry (GC-MS) were used to analyse the oil and to identify 38 components that represent 99.80 % of the total oil, with α -Pinene (27.02%), 1.8-Cineole (25.1%), Camphor (13.11%), Borneol (6.43%), and Linalool (4.27%). The essential oil of *R. officinalis* was applied with as 10, 15, and 20 μ L/petri to determine the larvicidal efficacy and Lethal Dose (LD) toxicity of *R. officinalis* essential oil on *P. abietina* larvae in the laboratory. Deaths were observed at different proportions at *R. officinalis* essential oil applications at 10, 15, and 20 μ L/Petri doses at 24th, 48th, 72nd and 96th hours on four instar larvae of *P. abietina* (38.3-100%). According to LD50 and LD90 values, the highest toxicity was found as L1 (0.63 μ l/larvae), and the lowest toxicity was found as L4 (10.94 μ l / larvae). As a result, rosemary essential oil showed high toxicity against L₁ and L₂ instar larvae of *P. abietina*.

Key words: biochemical components, larvicidal activity, little spruce sawfly, rosemary oil

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