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THIONATION OF ESSENTIAL OILS FROM ALGERIAN *ARTEMISIA HERBA-ALBA* L. AND *RUTA MONTANA* L.: IMPACT ON THEIR ANTIMICROBIAL AND INSECTICIDAL ACTIVITIES

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Abstract. Essential oils were extracted from *Artemisia herba-alba* L. and *Ruta montana* L. by means of steam distillation and thionated with a reagent combination of phosphorus pentasulfide and sodium bicarbonate. Both parent essential oils and their modified ones were screened for their biological and insecticidal activities. The results showed that essential oils were composed mainly of ketones; essential oils from *Artemisia herba-alba* L. and those from *Ruta montana* L. consisted of bicyclic monoterpenes and acyclic aliphatic ketones (thujone, camphor and 2-undecanone), respectively. The antimicrobial activity of essential oils was substantially improved upon thionation (from 10 to 34 mm and from 11 to 32 mm). The insecticidal effect of the thionated essential oil from *Ruta montana* L. was observed to be very significant, but that of the essential oil from *Artemisia herba-alba* L. was observed to decrease (from 100% to 70% after 24 h). The extracted essential oils as well as their thionated forms were characterized by GC-MS, FT-IR, and UV-visible.

Keywords: essential oil, thionation, *Artemisia herba-alba* L., *Ruta montana* L., GC-MS analysis.

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