

**SYNERGY EFFECT OF *Salvadora persica* AND *Olea europaea* TWIG
EXTRACT BASED ON PHYTOCHEMICAL STUDY, THIN LAYER
CHROMATOGRAPHY, AND GC-MS PROFILING**

HAYATI MAWADDAH BINTI DZULKEFLI

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ABSTRACT

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This study is designed to explore the phytochemicals, thin layer chromatography and GC-MS profiling of mixture between *S. persica* and *O. europaea* twig sample. The method used in this study started by obtaining crude extracts by using three solvents of different polarity; hexane (non-polar solvent), ethyl acetate (medium polar solvent) and ethanol (polar solvent). The highest percentage yields were recorded in ethanol (EtOH) extract with 14.5%, followed by ethyl acetate (EtOAc) with 4.5% and hexane (HEX) with 0.79%. The detection and identification of the phytochemical were performed through phytochemical screening. The phytochemical analysis of hexane extract of mixture *S. persica* and *O. europaea* twig showed the presence of saponins and terpenoid while for ethanol and ethyl acetate extract only showed the presence of terpenoid compound. The best developing solvents of thin layer chromatography (TLC) analysis of hexane extract was 3:7 (EtOAc: HEX), ethyl acetate extract was 3:7 (EtOAc: CHCl₃) and ethanol extract was 3:7 (EtOH: CHCl₃). From TLC study, the presence of saponin, terpenoid, alkaloid and phenolic were observed. GC-MS detected some of compound from two different solvent used which is hexane extract and petroleum ether extract. Finally, it has been suggested that the synergistic activity *S.persica* and *O.europaea* study should be continue with antibacterial activity research that will widely use in market.

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