

## Physiological Activity of *Robinia pseudo acacia* Leaf Extracts and Enhancement of Skin Permeation Using Polymer Micelles and Cell Penetrating Peptide

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This study was conducted to evaluate physiological activity of *Robinia pseudo-acacia* leaf and its skin penetration using polymer micelles and skin penetrating peptide. DPPH radical scavenging ability, Elastase inhibitory assay, SOD-like activity, and Tyrosinase inhibitory activity except total polyphenol content showed that *Robinia pseudo-acacia* leaf ethanol extract was higher than that of the *Robinia pseudo acacia* leaf hydrothermal extract at all concentrations. In the antimicrobial experiments, the hydrothermal extract had no effect, but ethanol extract represented clear zone in *Propionbacterium acnes* strain and *Bacillus subtilis* strain. To solve the problem of insolubility and to improve skin penetration, PCL-PEG polymer micelles containing *Robinia pseudo-acacia* leaf ethanol extracts and 1% cell permeable peptide, hexa-D-arginine (R6) were successfully prepared with particle size of 108.23 and 126.47 nm and excellent skin permeation effects could be showed.