

Antimicrobial, Antioxidant, and Antiproliferative Effects of *Coronilla minima*: An Unexplored Botanical Species

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Abstract: *Coronilla* species, belonging to the *Coronilla* genus (Fabaceae), have long been used in traditional medicine for treating cold, diabetes, pain, and as cardiotonics. The goal of the present study was to explore the phytochemical composition and pharmaco-toxicological properties of *C. minima*. In this regard, phenolic content, scavenging/reducing properties and antimicrobial activity toward pathogen bacterial (*Escherichia coli*, *Pseudomonas aeruginosa*, *Bacillus cereus*, *Staphylococcus aureus*) and fungal strains (*Candida albicans*, *C. tropicalis*, *Aspergillus tubigenensis* and *A. minutus*) were investigated. Extract effects on human colon cancer HCT116 cell viability were also assayed. Finally, a bioinformatics approach was conducted with the aim to identify putative microbial and human protein targets underlying antibacterial, antimycotic, and antiproliferative effects. Phytochemical investigation suggested that water extract is richer in terms of total flavonoid and phenol content, whereas the hydroalcoholic extract was revealed to be more potent as antioxidant agent. According to bioinformatics analysis, the antibacterial activity of the hydroalcoholic extract could be related to its content in resveratrol. The presence of resveratrol could also explain the hydroalcoholic extract efficacy in reducing HCT116 cell viability. In conclusion, the present study represents the first phytochemical and bio-pharmacological investigation about *C. minima*. Like other plants belonging to the Fabaceae family, *C. minima* revealed a good source of resveratrol, which could explain, albeit partially, the efficacy of the hydroalcoholic extract as antimicrobial, antioxidant, and antiproliferative agent.

Keywords: *Coronilla minima*; unexplored botanical species; resveratrol; antibacterial effects; antioxidant effects; antiproliferative effects; bioinformatics/docking

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