

Role of Berberine and Other Alkaloids in the Antimicrobial Activity of Berberis Lyceum

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Abstract: *Berberis lyceum Royle*, a medicinal shrub belonging to the family Berberidaceae, has long been used in traditional Ayurvedic and Unani medicine for the treatment of infectious diseases, inflammation, wounds, gastrointestinal disorders, and skin infections. The antimicrobial potential of *B. lyceum* is primarily attributed to its bioactive alkaloids, particularly berberine, along with other isoquinoline alkaloids such as palmatine, jatrorrhizine, berbamine, and oxyacanthine. This review examines the phytochemical composition of *B. lyceum*, focusing on berberine and related alkaloids, and discusses their mechanisms of antimicrobial action against bacterial, fungal, and protozoal pathogens. The review also highlights experimental evidence supporting the therapeutic potential of these alkaloids and outlines future research directions.

Keywords: Berberis lyceum, berberine, isoquinoline alkaloids, antimicrobial activity