



Comparative Study of Antimicrobial Effects of Three Chinese Medicinal Herbs Containing Protoberberine Alkaloids

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SUMMARY. Radix Berberidis, Rhizoma Coptidis and Cortex Phellodendri are commonly used traditional Chinese medicines that contain protoberberine alkaloids, and they have been applied for more than 2,000 years by virtue of anti-infectious effects. In the present study, we adopted modified broth microdilution method to investigate the antimicrobial activities of 5 protoberberine alkaloids (berberine, coptisine, palmatine, jatrorrhizin, epiberberine) on *Escherichia coli*, *Staphylococcus aureus*, *Shigella dysenteriae*, *Streptococcus pneumoniae* and *Candida albicans*. Meanwhile, we investigated the antimicrobial activities of the three herbal extracts, and it showed that protoberberine alkaloids had broad-spectrum antimicrobial activities, in which berberine showed the strongest activity. In addition, Rhizoma Coptidis showed the strongest antimicrobial activities among the three herbs, Radix Berberidis came next, Cortex Phellodendri the third. These results indicated that the antimicrobial activities of the herbs were correlated with the total alkaloid content, and different combinations among the alkaloids had different antimicrobial activity.

KEY WORDS: Antibacterial activity, Cortex Phellodendri, Modified broth microdilution method, Protoberberine alkaloids, Radix Berberidis, Rhizoma Coptidis.

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