

Fructus mume Diminishes Capsular Polysaccharide Biosynthesis in *Klebsiella pneumoniae*

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K. pneumoniae is the predominant pathogen isolated from liver abscesses of diabetic patients in Asian countries. Capsular polysaccharide (CPS) is considered as the major determinant for *K. pneumoniae* virulence, especially K1 and K2 serotype. With the widespread of multiple-drug resistance *K. pneumoniae*, it is an increasing need for development of an antimicrobial approach to block the virulence factor production. In this study, we sought to demonstrate traditional Chinese medicine *Fructus mume* not only possessed antibacterial activity against *K. pneumoniae*, but also inhibited the CPS biosynthesis of *K. pneumoniae*. Results revealed that *Fructus mume* dose-dependently decreased the bacterial mucoidy and the CPS amount. In addition, the inhibitory effect of *Fructus mume* on CPS biosynthesis at the transcriptional level. Based on the role of bacterial CPS on anti-serum killing, *Fructus mume* affect the ability of *K. pneumoniae*, through reduction of CPS amount, to resist the bactericidal effects of serum. Furthermore, citric acid has been demonstrated to be a major organic acid of *Fructus mume*, we also found that citric acid has a stronger inhibitory role on CPS biosynthesis. Take together, these results indicate that *Fructus mume* is an efficient antibacterial agent to increase the intracellular iron concentration to diminish CPS biosynthesis and the effect also reflects bacterial resistance to serum killing. We suggest that *Fructus mume* might be useful for diminishing the virulence of *K. pneumoniae*.

Key words: *Fructus mume*, capsular polysaccharide, *Klebsiella pneumonia*, tradition Chinese medicine