

Iron and virulence in *Stenotrophomonas maltophilia*: all we know so far

ABSTRACT

Stenotrophomonas maltophilia is a multi-drug-resistant global opportunistic nosocomial pathogen, which possesses a huge number of virulence factors and antibiotics resistance characteristics. Iron has a crucial contribution toward growth and development, cell growth and proliferation, and pathogenicity. The bacterium found to acquire iron for its cellular process through the expression of two iron acquisition systems. Two distinct pathways for iron acquisition are encoded by the *S. maltophilia* genome-a siderophore-and heme-mediated iron uptake system. The *entAFDBEC* operon directs the production of the enterobactin siderophore of catecholates in nature, while heme uptake relies on *hgbBC* and potentially *hmuRSTUV* operon. *Fur* and sigma factors are regulators of *S. maltophilia* under iron-limited condition. Iron potentially act as a signal which plays an important role in biofilm formation, extracellular polymeric substances (EPS), extracellular enzymes production, oxidative stress response, diffusible signal factor (DSF) and siderophore production in *S. maltophilia*. This review summarizes the current knowledge of iron acquisition in *S. maltophilia* and the critical role of iron in relation to its pathogenicity.

Keyword: *S. maltophilia*; Iron-depleted; *Fur*; Siderophore; Microbial iron acquisition; Virulence factors.