BioNanoScience 2016 vol.6 N4, pages 480-482

Production of Siderophores by Serratia marcescens and the Role of MacAB Efflux Pump in Siderophores Secretion

Khilyas I., Shirshikova T., Matrosova L., Sorokina A., Sharipova M., Bogomolnaya L.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, Springer Science+Business Media New York.Human opportunistic pathogen Serratia marcescens secrete siderophores to enable growth under iron-limiting conditions. Iron acquisition genes are among a few known virulence factors of S. marcescens. Siderophore export systems in Gram-negative bacteria are not fully understood. There is some evidence for involvement of efflux pumps in the export of synthesized enterobactin-like molecules. The goal of this study was to characterize siderophore production by two different strains of S. marcescens, SM6 and SR41-8000, and to evaluate the role of efflux pump MacAB in siderophore secretion by these strains. We showed that both strains produced siderophores in CAS agar assay. We further showed that both strains were able to secrete catecholate siderophores in response to iron starvation. MacAB efflux pump played a role in siderophore secretion of S. marcescens SR41-8000 strain but was dispensable for accumulation of these molecules in the culture supernatant of S. marcescens strain SM6.

http://dx.doi.org/10.1007/s12668-016-0264-3

Keywords

2,3-Dihydroxybenzoic acid, Efflux pump, MacAB, Serratia marcescens, Siderophores