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Some notes about medical applications for bacterial siderophore

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Statement of the problem: Some diseases need to treating by iron and some elements removing which achieved by production of bacterial siderophore.

Methodology & Theoretical Orientation: Under the iron-restricted condition many bacteria produced iron-chelating molecules called siderophore. Siderophore chelate iron and supply to the bacterial cell by outer membrane receptors. There are three main types of siderophores known as hydroxamate, catecholate, and carboxylate. It having many medical application, includes iron overload diseases treatment, such as β -thalassemia. In the treatment of β -thalassemia and certain other anemias, siderophores used as chelating agents, which having ability to bind with iron to produce complexes that lead to formation of ferrioxamine. The ferrioxamine is soluble in water and readily excreted through the kidneys. It binds with iron in the blood and enhances its elimination via urine and faeces, Selective Drug Delivery-Trojan horse strategy (Siderophore-antibiotic conjugates-Sideromycins, It can be used for selective delivery of antibiotics in antibiotic-resistant bacteria. Antimalarial Activity, Desferrioxamine B produced by *Streptomyces pilosus* used for the treatment of malaria caused by *Plasmodium falciparum*. Siderophores used for removing some elements from the body such as Aluminium overload, which occurs in dialysis encephalopathy, Vanadium removal, Desferal can be used for removal of vanadium from the body. Iron chelators in the treatment of cancers e.g. Dexrazoxane. Also used for the clearance of non-transferrin bound iron in serum which occurs in cancer therapy as a result of some chemotherapies. Iron chelation therapy may be useful against malignant cells without any significant cytotoxicity on nonmalignant cells. Siderophore has an ability to chelate various other metal ions which paved a way to concentrate the application of siderophore towards wound care products. Deodorant-Siderophore for *Klebsiella pneumonia* has been used in cosmetics as deodorant.

Findings: Using siderophore having an important role in disease treatment and other medical applications.

Conclusion & Significance: There are many medical applications for siderophore includes, Iron overload diseases treatment, Selective Drug Delivery, Antimalarial Activity, as Iron chelation therapy, as wound care products, also used in cosmetics as a deodorant.

Recommendations: Detection on the production of other types Siderophores which having the possibility for diseases treatment.