

## Metallophores selectively bind metals

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Metallophores are low-molecular-weight compounds produced by microorganisms for scavenging iron and other metal ions from the environment. Since these compounds had been mostly described for their iron binding capacity, they are often designated as siderophores as well. They possess a high affinity and selectivity for ferric iron ( $K_f > 10^{30}$ ). Some of them are able to effectively bind other metals (e.g. Ga, V, Mo) as well. In order to identify metallophores, which are able to bind strategically important metals like Gallium and Vanadium we screened numerous soil bacteria and fungi for metallophore production and metal-affinity using chrome azurol S (CAS) as the detection reagent. CAS agar effectively showed microorganisms which are able to produce and excrete large amounts of metallophores. But, many bacteria grew very poor or failed to grow on CAS agar. Thus we used an alternative growth medium and a liquid CAS assay variant. This assay was optimized regarding to the used buffer system, different metal ions and their concentrations as well as an optimal cultivation medium in order to have an applicative and useful screening method for different types of microorganisms. The producer strains are investigated in more detail and metallophores obtained for their applicability in metal-binding for purposes as extraction and sensors.

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