E301 Characterization of 2-Hydroxy-3-naphthoaldehyde Dehydrogenase and Mutant Strains from *Serratia marcescens* Strain KU9

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This study was done to investigate the characterization of 2-hydroxy-3-naphthoaldehyde dehydrogenase and altered plasmids in mutant strains from *Serrtia marcescens* strain KU9. 2-Hydroxy-3-naphthoaldehyde dehydrogenase was purified from strain KU9 grown on anthracene as the sole source of carbon and energy. The enzyme is specific for nicotinamide adenine dinucleotide and dehydrogenizes a member of *cis*-oxobut-enoic acid. The ability of *S. marcescens* strain KU9 to grow anthracene (Anh^+), 2-hydroxy-3-naphthoic acid (Hna^+), naphthalene (Nah^+) and salicylate (Sal^+) is correlated with the presence of an about 105 kilobase (kb) conjugative plasmid pHPL1. Derivatives of pHPL1 were obtained from cells after exposure to halogenated analogs of anthracene, naphthalene or salicylate. The region of pHPL1 DNA that encodes the enzyme responsible for the conversion of anthracene to 2-hydroxy-3-naphthoic acid (2H3NA) was identified. The structural changes in mutant plasmids were correlated with the absence of essential enzymatic activities.

E302 Physiological Characterization of Aniline Biodegradation in *Flavimonas oryzihabitans*

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Novel strains were isolated from soil, when aniline was provided as a sole carbon and nitrogen source. Among of them, three strains were *Flavimonas oryzihabitans* (KH1, KH2, and KH3). All of 3 strains metabolized aniline through ortho-cleavage pathway. Characterization of the isolates was examined on their antibiotic resistances, heavy metallic resistances, and degradative activities on aromatic compounds containing various chlorinated anilines. Oxygen consumption for whole cells and cell free extracts of these strains was measured using aniline and catechol as substrates. These results represent that their growth rates and activities on aniline biodegradation of KH1 and KH2 are superior to others and KH1 has the highest activity on oxidizing aniline and catechol as substrates.