Metabolism of mono-and dichlorinated guaiacols by *Rhodococcus ruber* CA16

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Abstract

The metabolism of chloroguaiacols by a soil bacterium was studied. The strain was isolated by enrichment with guaiacol as the sole carbon and energy source, and identified as a *Rhodococcus ruber* CA16. None of seven chlorinated, guaiacols supported bacterial growth. However, ultraviolet spectroscopy chloride release, and oxygen consumption showed that resting cells grown on guaiacol degraded completely 4-chloroguaiacol 5-chloroguaiacol and 6-chloroguaiacol and, to a lesser extent, 4,5-dichloroguaiacol Gas chromatographic analysis suggested microbial formation of 4-chlorocatechol and 4,5-dichlorocatechol from 4-chloroguaiacol and 4,5-dichloroguaiacol, respectively. Although mono-and dichloroguaiacols did not affect the strain's ability to grow on guaiacol, chlorocatechols completely arrested growth. The role of chlorocatechols in chloroguaiacol metabolism by this guaiacol-degrading bacterial strain is discussed.