

Analysis of Carotenoids and the Identification of Mangrove Sediment Bacteria of Segara Anakan, Cilacap

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Abstract	<p>The excessive consumption of artificial dyes can lead to negative effects on human body. Thus, the invention of natural dyes, such as carotenoids, is needed in order to reduce the negative impacts. Carotenoids are yellow, orange, and reddish yellow pigments produced by plants, animals, algae, and microorganisms. This study was aimed to analyze the carotenoid pigments of mangrove sediment bacteria in Segara Anakan, Cilacap, and to identify species of bacteria that can produce carotenoids. Carotenoids were analysed by using Thin Layer Chromatography (TLC) and UV-Vis spectrophotometer. Meanwhile molecular identification of bacteria was carried by 16S rDNA PCR and DNA sequence was analysed through a program called Basic Local Alignment Search Tool (BLAST). The kinship of bacteria was shown in Phylogenetic tree by using Bioedit and MEGA 5 software. Qualitative analysis by using TLC produced several pigments like: β-carotene, isorenieraten, lycopene, flavonoids, chlorophyll a, chlorophyll b and a feofitin with Rf value of 0.36-0.95. Quantitative analysis showed that bacteria KH (greenish yellow), KT (dark yellow) and KM (light yellow) produced carotenoids at 95.30 mg.g⁻¹, 110.34 mg.g⁻¹ and 25.349 mg.g⁻¹. KH, KT and KM were suspected to be bacteria known as <i>Streptomyces chartreusis</i>, <i>Bacillus megaterium</i> and <i>Streptomyces chromofuscus</i> with similarity of 99%. Mangrove sediment bacteria had the potential of producing carotenoids as an alternative of eco-friendly natural dyes.</p>
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