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Preliminary Investigation of the Carotenoid Composition of *Erythrobacter* sp. Strain KJ5 by High-Performance Liquid Chromatography and Mass Spectrometry

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Separation and identification of carotenoids (Cars) from aerobic marine bacterium *Erythrobacter* sp. strain KJ5 are reported. The cells of *Erythrobacter* sp. were grown in a Shioi medium at 28.5°C for three days. Among the four solvents tested, the mixture of methanol and acetone (3:7, v/v) was determined as the optimum solvent for Car extraction from the cells by measuring its absorption spectrum. The Cars were separated via reversed-phase high-performance liquid chromatography using a C8 column and identified by a UV-Vis photodiode array detector and an electrospray ionization mass spectrometry. Bacteriochlorophyll *a* was not detected from the extracts of cells grown under both light and dark conditions. At least 16 peaks of Cars were separated, wherein eleven peaks showed the same absorption spectrum with λ_{max} at 452-453 nm and at 478-499 nm. The other five peaks had an additional absorption peak at 349 nm, which belongs to *cis*-isomeric form. Two peaks of Cars were identified to be zeaxanthin and β -carotene.

Key words: β -carotene, carotenoids, *Erythrobacter* sp., high-performance liquid chromatography, mass spectrometry, zeaxanthin

INTRODUCTION
Carotenoids (Cars) are isoprenoid pigments in the form of yellow, orange, and red color found in both photosynthetic and non-photosynthetic organisms. Cars play a critical role in the photosynthetic process for higher plants, algae, and anoxygenic photosynthetic bacteria. Moreover, Cars act as photoprotector by quenching the chlorophyll triplet and by scavenging singlet oxygen to protect cellular constituents i.e., DNA and membranes (Frank & Cogdell 1996). In addition, many evidences reveal the beneficial health effects of Cars as antiobesity (Miyashita 2009), antioxidant (Yeum et al. 2009), and anticancer (Kotaka-Nara et al. 2001) agents.
Some Cars such as β -carotene, α -carotene and β -cryptoxanthin serve as important sources of pro-vitamin A (Tung & Russell 2009). Moreover, in the food industry,

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