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Carotenoids from the Indonesian Exotic Species

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Carotenoids are a family of yellow to orange-red pigments, structurally consisted of 40-carbon atom to form 8-isoprene skeletons. Currently there are more than 500 carotenoid structures have been fully elucidated. Carotenoids are very interesting system. Their conjugated double-bond system determines the light-absorption properties and chemical reactivity that form the basis of most functions. Specific interactions with other molecules in the immediate vicinity strongly influence the properties of a carotenoid and are also crucial to functioning. Carotenoids play important role in the photosynthesis reactions, i.e. to harness the sunlight energy, to transfer the excited energy to chlorophylls, and responsible for photo-protection such as in protection against UV- and blue-ray, singlet oxygen scavenging and quenching of chlorophyll triplet states. Our group works in determination of carotenoids from Indonesian natural resources, e.g. red fruit (*Pandanus conoideus*), an indigenous plant in Papua Island, marigold flower (*Tagetes erecta* L.), a religious significant flower of Balinese Hindus, brown algae (Phaeophyceae), and a coral endophytic symbiont (*Erythrobacter* sp.). We are working with carotenoids such as as b-carotenone, semi-b-carotenone, lutein, fucoxanthin, and sulfated carotenoids. In this presentation, we would like to introduce the wide variety carotenoid, functions in photosynthesis reaction and functions in human health, efforts to determine the structure in various indigenous species, and the study about its aggregation properties in organic solvent, nanoparticles and in the native pigment-protein complex.

Keywords: aggregation, carotenoid, chromatographic separation, spectroscopic determination