研究業績　英文表記

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Title	Physico-chemical chlorophyll-a species in aqueous alcohol solutions determine the rate of its discoloration under UV light
Author	Midori Yasuda[a,*], Keisuke Oda[b], Toshihisa Ueda[b], Masaaki Tabata[c]
Affiliation	[a]Department of Health and Nutrition Sciences, Nishikyushu University, Kanzaki, Saga 842-8585, Japan, [b]Department of Applied Biochemistry and Food Science Life Chemistry, Saga University, Honjo-machi, Saga 840-8502, Japan, [c]Department of Chemistry and Applied Chemistry, Graduate School of Science and Engineering, Saga University, Honjo-machi, Saga 840-8502, Japan
Abstract	Chlorophyll-a (Chl-a) discolors when it is exposed to light, and such discoloration decreases food quality. To elucidate the discoloration mechanism of Chl-a, we determined discoloration rate in different Chl-a chemical species and assessed the size of Chl-a aggregates in mixed aqueous solutions of methanol and ethanol. Chl-a existed as monomer, J-aggregate, and random aggregate in solutions with different alcohol concentrations. The predominant species depended on the alcohol concentration. Monomeric Chl-a and J-aggregates discolored quickly, whereas random aggregates discolored slowly. Particle sizes of J-aggregates were 319 and 2305 nm in diameter in aqueous solutions of methanol and ethanol, respectively. The sizes of random aggregates were 51 and 79 nm in 10% (v/v) aqueous solutions of methanol and ethanol, respectively. The size of Chl-a aggregates positively correlated with the rate of Chl-a discoloration under UV light. Based on the results obtained, we propose a mechanism of Chl-a discoloration.
keyword	Chlorophyll-a, Discoloration, J-aggregates, Random aggregates, Particle size

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