Concept for Measurement of Antioxidative Functions in Foods and Food Components

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＜Abstract＞

Oxidative stress may cause free radical chain reactions to produce deleterious modifications in membranes, proteins, enzymes and DNAs. Life style-related diseases such as cancer, atherosclerosis and diabetes are supposed to be correlated with oxidative stress although the detailed mechanisms are still unclear. Our research group is now developing novel ELISA methods for detection and quantification of oxidative damage caused in the living systems by application of monoclonal antibodies, which are specific to oxidative stress biomarkers. By application of these oxidative stress biomarkers to “Antibody Chips”, we can make the reliable, simple and convenient evaluation methods for endogenous antioxidative defence systems. Evaluation systems for antioxidative activities for foods and food components are also important. In USA, ORAC assay system has been introduced for evaluation of antioxidative activities for polyphenols and vitamin C, however, ORAC cannot be applied for measurement of antioxidative activity for carotenoids. From these backgrounds, we are now establishing antioxidative evaluation assay “Antioxidant Units (AOU)” for foods and food components. In this manuscript, I am going to discuss about the recent progress of AOU research.