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[\[PDF \(659K\)\]](#) [\[References\]](#)**Development of a Spectrophotometric Assay System for Evaluating Reducibility of Water-Soluble Substances**[Shinya ASHIDA](#)<sup>1)</sup>, [Satoshi F. NOGUCHI](#)<sup>1)</sup> and [Ryoichi SATO](#)<sup>1)</sup>*1) Central Research Institute, Maruha Co.*

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A spectrophotometric assay system for evaluating reducibility of water-soluble substances using native bovine oxymyoglobin (MbO<sub>2</sub>) was developed. With incubation of MbO<sub>2</sub> solution at fixed temperature and pH, the autoxidation rate to metmyoglobin (metMb) was measured. The reductive effects of test samples on metMb could be estimated as numerical values based on the changes in the rate constants from MbO<sub>2</sub> to metMb. The reductive effects of four kinds of water-soluble compounds were examined: L-ascorbic acid (AsA) strongly reduced the autoxidation rate of MbO<sub>2</sub>, glutathione and kojic acid showed reductive effects inferior to that of AsA, while gallic acid tended to promote autoxidation at high concentrations. The results of test compounds obtained by the present MbO<sub>2</sub> assay were compared with data by ferricyanide assay and XTT assay, which are known methods for evaluating reducibility. The MbO<sub>2</sub> assay is useful because of its superior features of sensitivity, application flexibility and capability of evaluating pro-oxidant activity of reducing agents.

**Keywords:** [reducibility](#), [oxymyoglobin](#), [metmyoglobin](#), [L-ascorbic acid](#)[\[PDF \(659K\)\]](#) [\[References\]](#)

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