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Comparison of Traditional Culture Method with DOX System for Detecting Coliform and *Escherichia coli* from Vegetables

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The methods of sanitary inspection performed primarily by traditional culture methods are time consuming, laborious, and require complicated laboratory techniques. A number of instrumental methods have been introduced for the rapid determination of viable cells based on the metabolic activities of microorganisms. The DOX system is one of the newly developed rapid inspection methods. It has three independent incubators that hold 60 vials each can estimate viable bacterial cell number by measuring the respiration speed of microorganisms and also has a high correlation between the detection time (Dt) and the viable bacterial cell number. We made a quantification analysis of coliform, and identified the presence of *Escherichia coli* from various kinds of vegetable samples. A total of 131 vegetable samples were tested to compare the plate count of coliform to the count using the DOX method. The correlation coefficient for the estimation of coliform-bacterial cell number was 0.85, which theoretically suggested that the DOX system was able to detect one cell of coliform-bacteria after 17.7 h of incubation. Among the 131 samples, 20 samples were confirmed for the presence of *E. coli*-positive cells using the UV-lamp method. This study suggested that the DOX system performs better than the conventional method for the routine inspection of coliform and *E. coli* from vegetable samples. Therefore, this system could be useful for the rapid detection of coliform and *E. coli* from vegetable samples with minimum labor and cost.

Keywords: [dissolved oxygen](#), [DOX](#), [coliform](#), [Escherichia coli](#), [rapid estimation method](#)

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