1	Proteomic Analysis on the Viable but Nonculturable State of
2	Listeria monocytogenes Induced by Slightly Acidic Electrolyzed Water
3	and Its Changes during Storage
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6	Outline
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13	Abstract
14	Foodborne outbreaks have been constantly reported in these years. It is important to

15 control Listeria monocytogenes, which is major foodborne pathogen from dairy and salad that can potentially lead to foodborne infections. However, some pathogens can turn into 16 viable but nonculturable (VBNC) state. It means that the pathogens are alive but cannot 17 18 grow on the agar plate. If common detection methods are used, they may result in 19 misjudgment due to the viable but non-culturable state of cells, which cannot be 20 cultivated. Electrolyzed water has been using for a long time, especially slightly acidic 21 electrolyzed water (SAEW). SAEW not only can be used for research bacteria 22 inactivation, such as Staphylococcus aureus, Escherichia coli and Pseudomonas 23 fluorescens, etc., but also can be used in food industry. Because of the low cost, 24 appropriate pH value and low corrosivity. In this study, trying to find out which available 25 chlorine concentrations (ACC) in SAEW can make L. monocytogenes turn in VBNC state. 26 The results show that when the treatment of SAEW in 4-6 mg/L can make the highest 27 percent of VBNC cells from SYTO 9/PI staining assay. But there is too much of the live 28 cells, in the plate count results cannot find the VBNC cells directly. In the SDS-PAGE, 29 the proteins in the whole bacteria have been separate. Because of hypochlorous acid, the 30 treatments of SAEW in 6-10 mg/L make the proteins denature intensely. In summary, 4 mg/L SAEW induced the maximum of L. monocytogenes in VBNC state and 31 32 approximately 10%.