Title : Tannic acid tolerance and biological control of *Bacillus velezensis* ML122-2 isolated from Miang leaf

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ABSTRACT

Miang leaves (*Camellia sinensis* var. *assamica* (J.W. Mast.) Kitam.) contains tannic acid, a natural phenolic compound involving flavor, aroma and biochemical properties of the leaves. The traditional fermentation process of Miang, a method of leaf preservation, affects the quantity and structure of tannic acid. This study focused on tannic acid tolerance and biocontrol potential against some bacteria during the fermentation process of *Bacillus velezensis* ML122-2 isolated from Miang leaves. To evaluate the tannic acid tolerance, *B. velezensis* ML122-2 was grown on tryptic soy agar (TSA) supplemented with tannic acid at concentrations of 0.0, 0.2, 0.4, 0.8 and 1.6% (w/v). All plates were incubated at 37°C for 24 hours. The results demonstrated that *B. velezensis* ML122-2 could tolerate all test tannic acid concentrations. When grown *B. velezensis* ML122-2 in tryptic soy broth containing various concentration of tannic acid ranging from 0 - 1.6% (w/v) and incubated at 37°C for 48 hours with culture broth sample collection at time 0, 24 and 48 hours for agar well diffusion assay against *Lactiplantibacillus plantarum*, *Staphylococcus aureus*, methicillin-resistant *S. aureus*, *S. epidermidis* and *Pseudomonas aeruginosa*. The results exhibited the ability of *B. velezensis* ML122-2 to inhibit growth of *S. aureus* and MRSA. Interestingly, *L. plantarum*, a significant probiotic, was not inhibited by the *B. velezensis* ML122-2 culture broth. These findings highlighted the potential of *B. velezensis* ML122-2 as a biocontrol agent.

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