

Abstract

This research is the study on the effect of *Bacillus subtilis* on quality of essential oil distilled from *Aquilaria crassna*. *A. crassna* wood was collected from Rayong province. Firstly, *A. crassna* was fermented with various microbial for 7 days before subjected to hydrodistillation for 48 hrs. The essential oils obtained from microbial fermentations were then analyzed their chemical constituents, biological and antioxidant activities, respectively. As the results, essential oils of *A. crassna* obtained from microbial and without treatment extracted using a modified Likens-Nickerson apparatus appeared as yellow viscous liquids with percentage yields of 0.03-0.21 w/w. Highest yield was detected in essential oil obtained from TN-51 followed by Best-195, S1-13, *S. cerevisiae* and *L. bulgaricus*, respectively. In addition, it was found that number of volatile components was different significantly in *A. crassna* essential oils treated with various microbes. As can be observed, the different antimicrobial activities were found among these essential oils which may be due to the different major compounds in these essential oils. However, *A. crassna* essential oils obtained from different microbial treatment exhibited lower antioxidant activity than α -tocopherol and butyl hydroxyl toluene.