

Optimization of extraction conditions of antioxidant activity from zingiber zerumbet oleoresin

Abstract:

The health promoting capacity of natural antioxidant from phytochemicals has increase attention from researchers and public. However, processing is affecting the activity and the bioavailability of bioactive compounds. Therefore, the optimization of extraction condition of antioxidant activity from Zingiber zerumbet oleoresin was investigated. A Box-Behnken design technique was employed to study the effect of different range parameters of soxhlet extraction. Analysis of variance and response surface methodology were applied to identify the optimal processing parameter. Independent variables were extraction time (8, 10 and 12), type of solvent used (hexane, acetone, ethanol) and blanching treatment (steam treated, boil treated, untreated). The response and variables were fitted well to each other by multiple regressions. All the independent parameters affected oleoresin yield and antioxidant activity significantly. The optimal processing parameter that fulfilled the requirement for yield of oleoresin and antioxidant activity were found to be 12 h extraction time, ethanol as the solvent used and untreated sample. While, the optimal yield of oleoresin was 13.05% w/w and antioxidant activity was 16.01% w/w.