Abstract:

Optimizing new methods of extracting phenolic compounds and natural antioxidants with the properties of preventing oxidative stress and delaying the oxidation of fats and inhibiting free radicals has been recently noticed.In this study, after the preparation of coriander extract by combining ultrasonic method and eutectic solvents, phenolic compounds were investigated by Folin Ciocaltio method and antioxidant properties by DPPH method.For this purpose, three types of solvents of his technique (oxalic acid at a molar ratio of 1:1, glycerol at a molar ratio of 2:1, and lactic acid at a molar ratio of 3:1) were prepared based on the hydrogen bond acceptor of choline chloride.The independent variables including water content in the solvent (weight percent), extraction time (minutes) and temperature (degrees Celsius) were analyzed with the statistical test of central composite matrix analysis. Based on the results, the highest content of phenolic compounds (1.692 mg gallic acid per gram) was observed in oxalic acid treatment.The optimal amount was obtained based on the maximum total phenol and minimum DPPH-IC50 and the desirability of a model as water content in the solvent (weight percent) 34.13, time (minutes) 48.82, and temperature 59.40 centigrade.Based on the obtained results, after further investigations, coriander extract extracted based on the optimal model method can be used for various medicinal and food applications.

Keywords: *Bifora testiculata* L., Extract-Deep eutectic solvents (DESs), Antioxidant properties, Choline Chloride.