OPTIMIZATION THE FREEZE DRYING CONDITIONS OF OLIVE SEEDS

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Abstract -
In this study, response surface methodology (RSM) was used to obtain the optimum conditions for the freeze drying of Gemlik variety olive seeds ofto achieve the desired quality characteristics. The BoxBehnken Design (BBD) was applied with three-variable and three replications in the center point. The effects of the different drying parameters including initial temperature of olive seed, pressure and time for freezing on the DPPH activity, total phenolic contents, oleuropein absorbance value of the samples were investigated. Temperature (50–82°C), pressure (0.2-0.5mbar), time (6-10 hours) were chosen as independent variables. The analysis revealed that, while the temperature of the product prior to lyophilization and the drying time had no statistically significant effect on DPPH activity ($p>0.05$), pressure was more important than the other two variables, and the quadratic effect of pressure had asignificant effect on DPPH activity ($p<0.05$). The R^2 and Adj-R^2 values of the DPPH activity model were calculated to be 0.8962 and 0.7045, respectively.

Keywords - *Oliveseed, Gemlik Variety, DPPH, Phenolics, Optimization*