

## EVALUATION OF ANTIOXIDANT ACTIVITY OF PROPOLIS EXTRACT ON THE INHIBITION OF SOYBEAN OIL OXIDATION

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**Introduction:** Regarding the fact that the use of synthetic antioxidants has unwanted effects like mutagenesis ,toxicological and carcinogenic complication in the human body, they are gradually taken off from the list of approved antioxidants. Therefore the production of natural antioxidants as a replacer seems necessary. Antioxidant properties of plant extracts are apparently related to the content of their phenolic compounds. Propolis is a resinous substance collected by honeybees from various plant sources. More than 300 compounds have been reported as being constituents of propolis: polyphenols (flavonoids, phenolic acids and their esters), terpenoids, steroids, and amino acids. Our study goals were to assess the antioxidants potential of 5 samples of propolis extract is the Kurdistan Iran.

**Materials and Methods :** In this study, phenolic compounds propolis were extracted with ethanol (70%) .Extracts of propolis at two different concentrations(500 and 1000 ppm), BHA(Butylated hydroxyanisole) and BHT (Butylated hydroxytoluene) at two concentrations of 100 and 200 ppm were added to the two types of soybean oil (with and without of citric acid ) and all samples were kept at 35 ° C for 11 days. Protective effects of the extracts in stabilizing soybean oil were tested by measuring peroxide and thiobarbitoric acid values at definite time intervals and were compared with synthetic antioxidant, BHA and BHT . This study is a factorial experiment in a completely randomized design with 3 replications and the data obtained by Minitab and Mstat-C software were analyzed and drawing graphs by Excel software was used.

**Results and Discussion :** Results showed that the antioxidant effect of extract of propolis at concentration 500 ppm was better than that of other antioxidants .The conclusion ,propolis extract has antioxidant activity( $p < 0.05$ ), Soybean oil is the good and efficiency of the oxidation process. Also antioxidant activity of extract, concentration dependent so that a higher efficiency at low concentrations and at higher concentrations is pro-oxidant State. The peroxide and thiobarbitoric acid values of control samples were raised to 83.30 (meq peroxide/ kg oil) and 0.44 (mg malondialdehyde/kg oil) after eleven days storage while this values were 34.97 and 0.1250 for oil sample contain 500 ppm ethanol extract and for 1000 ppm were 38.87 and 0.2200, respectively. Further research is required to get more information before it can be used routinely as a source of natural antioxidants .

**Key words :** propolis extract , Antioxidant , Soybean oil, Oxidation , citric acid



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