

## عنوان مقاله:

Determination of Antioxidant and Antimicrobial Compounds of Ganoderma lucidum Extract in Laboratory Different Conditions

## محل انتشار:

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## خلاصه مقاله:

Due to the disadvantages of synthetic antioxidants, natural antioxidants have attracted more attention in recent years. Plants are a rich source of phenolic and flavonoid compounds among the most important natural antioxidants. Therefore, the objective of this study was to optimize the extraction of flavonoids, total phenols, antioxidant and antimicrobial compounds from Ganoderma (G) lucidum by ultrasonic pretreatment. To do so, independent variables including type of solvent (ethyl acetate, 50% ethanol, and 50% ethyl acetate), extraction time (6, 9, and 12 min), and ultrasonic power (150, 200, and 250 W) as well as Box-Behnken response surface methodology (RSM) were used. The results showed that the simultaneously optimized conditions for obtaining the maximum flavonoid content (14.3348 mg/g) and total phenolic content (24.6648 mg/g) and the lowest IC<sub>50</sub> (2.3987 mg/mL) with 100% desirability included ultrasonic power of 250 W, ultrasonic time of 12 min and ethanol solvent. The highest mean minimum inhibitory concentration (MTC) and minimum bactericidal concentration (MBC) of G. lucidum extract obtained by ultrasonic pretreatment were 2500 and 5000 µg/ml, respectively, against Clostridium perfringens. Optimal treatment using ultrasonic pretreatment had superior antimicrobial activity against Staphylococcus aureus with the largest diameter of non-growth halo (zone of inhibition) (14.33 mm) compared to E. coli and C. perfringens. Therefore, ultrasound is a valuable method for extracting bioactive compounds of G. lucidum. The extracted natural antioxidants can be incorporated into the food formulations to replace synthetic antioxidants.

## کلمات کلیدی:

Ganoderma lucidum, Ultrasound, Flavonoid, total phenolic content, antioxidants

## لینک ثابت مقاله در پایگاه سیویلیکا:

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