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Microwave-assisted Synthesis, Characterization, and Evaluation of Maleimide and Phthalimide Derivatives as an Antioxidant Agent

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SUMMARY. **Because of the broad biological activities of phthalimide and maleimide derivatives, we synthesized a series of new phthalimide and maleimide derivatives for therapeutically active compounds by using the microwave-assisted synthesis method and evaluated them for *in vitro* antioxidant activity by using 1,1-diphenyl-2-picrylhydrazyl (DPPH) method. All the synthesized compounds were characterized by UV, ^{1}H-NMR, and mass spectral analysis whereas TLC was performed to examine the completion of the reactions. The compound A_1 of the maleimide series and B_3 of the phthalimide series showed a higher percentage of practical yield, whereas compound A_3 of the maleimide series and B_4 of the phthalimide series exhibited higher antioxidant activity as compared to other compounds. These compounds were synthesized with the help of a microwave-assisted method and also exhibited considerable antioxidant activity. The compounds may also be further evaluated for other therapeutic benefits in animal models.**

RESUMEN. Debido a las amplias actividades biológicas de los dervados de ftalimida y maleimida, hemos sintetizado una serie de nuevos derivados de ftalimida y maleimida para ser udados como compuestos farmacológicamente activos usando el método de síntesis en microondas y evaluando su actividad antioxidante *in vitro* usando el mètodo del 1,1-difenil-2-picrilhidrazilo (DPPH). Todos los compuestos sintetizados fueron caracterizados por análisis UV, ^{1}H-NMR y espectro de masas, en tanto que la TLC fue utilizada para realizar el examen de la finalización de las reacciones. El compuesto A_1 de la serie de maleimida y el B_3 de la serie de ftalimida mostraron un alto rendimiento, en tanto que el compuesto A_3 de la serie de maleimida y el B_4 de la serie de ftalimida eshibieron una elevada actividad antioxidante en comparación con el resto de los compuestos. Los compuestos sintetizados deberían er evaluados en relación a sus propiedades terapéuticas en modelos nimales.

KEY WORDS: antioxidant activity, characterization, maleimide, microwave-assisted synthesis, phthalimide.

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