

## Exploring the Antioxidant Potential of Some Common Marketed Nutraceuticals/Drugs in Pakistan by Different *In Vitro* Models

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**SUMMARY.** An imbalance between formation of reactive oxygen species metabolites and the rate at which they are scavenged by enzymatic and non-enzymatic antioxidants is referred to as oxidative stress. Oxidative stress plays an important role in some physiological conditions and in many diseases and disease states, including diabetes mellitus, cancer or neurodegenerative disorders. The present research was aimed to evaluate the antioxidant activities of different nutraceuticals/drugs to offer possible explanations on the molecular antioxidant mechanisms of these drugs. *In vitro*, the antioxidant capacity of the drugs was assessed by the ability of drugs to donate hydrogen and stabilize the free radical 2,2-diphenyl-1-picryl-hydrazyl (DPPH•), to scavenge 2,2'-azino-di-(3-ethylbenzthiazoline-6-sulphonic acid (ABTS<sup>+</sup>) and evaluation of the ferric reducing antioxidant power (FRAP). The nutraceuticals/drugs under investigation exhibited good scavenging activity in all methods. The range of % scavenging on DPPH, ABTS and FRAP value were found to be 34.5-91.6 %, 39.9-91.9 % and 1.394-1.782 (10 mg/mL), respectively.

**RESUMEN.** Un desequilibrio entre la formación de metabolitos reactivos de las especies de oxígeno y la velocidad a la que son eliminados por antioxidantes enzimáticos y no enzimáticos se conoce como estrés oxidativo. El estrés oxidativo desempeña un papel importante en algunas afecciones fisiológicas y en muchas enfermedades y estados patológicos, como diabetes mellitus, cáncer o trastornos neurodegenerativos. El objetivo de la presente investigación fue evaluar las actividades antioxidantes de diferentes nutracéuticos/medicamentos para ofrecer posibles explicaciones sobre los mecanismos antioxidantes moleculares de estos medicamentos. *In vitro*, la capacidad antioxidante de los fármacos se evaluó por su capacidad para donar hidrógeno y estabilizar el radical libre 2,2-difenil-1-picril-hidrazilo (DPPH•), para eliminar el 2,2'-azino-di- (ácido 3-etilbenzotiazolina-6-sulfónico (ABTS<sup>+</sup>) y evaluación del poder antioxidante reductor férrico (FRAP). Los nutracéuticos/fármacos investigados mostraron una buena actividad de eliminación en todos los métodos. El rango % de eliminación en DPPH, ABTS y FRAP se encontró que era 34.5-91.6%, 39.9-91.9% y 1.394-1.782 (10 mg/mL), respectivamente.

**KEY WORDS:** ABTS, antioxidant mechanisms, DPPH, FRAP, nutraceuticals.

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