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In Vitro Antioxidant Activity of Biphenyl-2,6-diethanone Derivatives

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Abstract: Excessive accumulation of free radicals results in cellular oxidative damage which has been reported to initiate the progression of several diseases such as cancer, alzheimer's disease and parkinson's disease. Antioxidants are free radical scavengers that play an important role in preventing oxidative cell damage and repairing the damage caused by free radicals. Biphenyls have been reported as a promising free radical scavenging scaffold. The objective of the present study was to evaluate the antioxidant activity of biphenyl-2,6-diethanone derivatives. A series of biphenyl derivatives were synthesized by the reported procedures. The antioxidant activity of these derivatives was evaluated using DPPH and lipid peroxidation assay. The *in vitro* antioxidant studies indicated that substituted biphenyl-2,6-diethanones, **1(a-i)** exhibited significant free radical scavenging activity. Compounds **1e** exhibited maximum antioxidant potential with an IC_{50} value of 54.96µg/ml. The present investigation indicated that derivatives containing hydroxyl, amine and methoxy groups on the biphenyl-2,6-diethanone scaffold exhibited significant antioxidant activity.
Keywords: Antioxidant, Biphenyl-2,6-diethanone, DPPH, Lipid peroxidation.

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