

## FREE RADICAL SCAVENGING AND DNA SCISSION INHIBITION ACTIVITY OF BAEI (*AEGLE MARMELLOS*) FLOWER EXTRACTS

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*Aegle marmelos* is a tropical plant grown in Southeast Asian countries, including India, Sri Lanka, Pakistan, Bangladesh, Burma, and Thailand. Different parts of Bael tree are used for the treatment of a number of ailments in traditional Ayurvedic medicine. Extracts of Bael flower in boiling water serve as a popular herbal beverage in Sri Lanka since ancient times. Natural antioxidants such as phenolic compounds have been implicated in protection against non communicable diseases (NCDs) in which oxidative stress is a main contributor. This study is aimed at determining the phenolic content, the free radical scavenging efficacy and the DNA scission inhibition activity of Bael flower extracts. The extracts of Bael flowers were prepared using different solvent systems and examined for their total phenolic content (TPC). Selected extracts which showed high TPC were subsequently used to determine their efficacy in scavenging hydroxyl, and 2, 2-diphenyl-1-picrylhydrazyl (DPPH) radicals, using electron paramagnetic resonance (EPR) spectroscopy. The corresponding peroxy radical scavenging activity was measured using oxygen radical absorbance capacity (ORAC) assay. The potency of the extracts in inhibiting hydroxyl and peroxy radical-induced supercoiled DNA scission was also evaluated. The chemical identity of phenolic compounds present in the extracts was unraveled using HPLC-MS. The TPC ranged from 70 to 243 mg gallic acid equiv / g flower (dry weight). Phenolic extracts of Bael flowers effectively inhibited hydroxyl, peroxy and DPPH radicals. Phenolic extracts demonstrated notable inhibitory activity against peroxy radical induced DNA scission. Vanillic, *p*-coumaric, chlorogenic, caffeic, gentisic acids were identified as major phenolic acids, along with some flavonoids such as catechin, and quercetin. The knowledge gained here may help to exploit the use of Bael flower extracts as functional herbal beverage ingredients in the prevention of NCDs.

**Keywords:** DNA scission, DPPH, Hydroxyl, Peroxyl